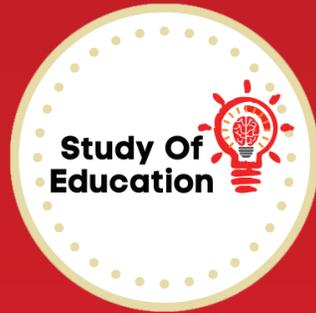


NTA UGC NET EXAM STUDY MATERIAL



UGC NET

Psychology

Notes | MCQs

Study Of Education

To Create Educators

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UNIT – 1

Research Methodology and Statistics

RESEARCH METHODOLOGY AND STATISTICS

What is Research: Meaning, Purpose, and Dimensions, Research problems, Variables and Operational Definitions, Hypothesis, Sampling, Ethics in conducting and reporting research?

Research: Meaning, Purpose, and Dimensions, Research problems, Variables and Operational Definitions, Hypothesis, Sampling, Ethics in conducting and reporting research

The Research Meaning of Psychology

Psychologists try to answer these questions, develop the principles to explain them, and use those principles to solve various problems. The range of application of psychology is very wide. A cognitive psychologist may like to know the causes of forgetting. An organisational psychologist may try to find out nature of resistance among the employees to introduction of new performance appraisal system. A health psychologist may like to examine the relationship between smoking behaviour and coronary heart disease.

While evaluating major areas of psychological researches, a psychologist uses the principles and practices of scientific methods. This unit attempts to acquaint you with nature and relevance of psychological research. This is followed by the process of psychological research within the context of discovery and context of justification as well as distinctive goal of psychological researches.

OBJECTIVES

After reading this unit, you will be able to: Describe the research process in terms of how to conduct sound research and

- λ how to evaluate critically the research of others; Understand why people behave as they do;
- λ Discuss how to maintain objectivity and minimize the research bias in psychology
- λ research; Tell others the role of theory, hypothesis and paradigm in psychological research;
- λ Discuss the primary objectives and goals of psychological research;
- λ Identify some of the problems one encounters in trying to do reliable and valid

NATURE OF PSYCHOLOGICAL RESEARCH

Importance and relevance of psychological research is well recognised almost in every sphere of human life. Notable progress has been reported in the field of organisational behaviour, applied aspects of human being, medical sciences and education, through application of psychological research findings. Empirical and theoretical researches in psychology are taking place in various fields, such as learning, motivation, perception, concept learning and memory and so on.

In the quest of psychological facts, laws and theories, psychologists have found research studies very helpful in gauging human and animal behaviour. Psychological research attempts to understand why people and animals behave as they do. Psychologists usually define behaviour as overt activities, such as eating, recalling stories, and so on. What about covert psychological processes, such as thinking and feeling? Although thoughts and feelings are not directly observable, they influence such aspects of behaviour as reaction time and blood pressure, which are often used to measure these covert processes.

Practical gains of psychological research are many, yet include discoveries such as improved methods of treating psychologically disordered people, better designs of vehicles to make them easier and safe to use, and new ways of enhancing the performance and happiness of workers. Before we examine what researchers have found in the major areas of psychology, we need to

identify the ways psychologists gather data about behaviour and mental processes.

You may be a daily consumer of mass media reports on research findings. Some of these are valuable, some are worthless, and others are confusing and misleading. You will become a wiser consumer of research-based conclusions as you develop your understanding of how psychological research is conducted and why the scientific view of knowledge dictates such methods. Let us turn now how psychologists know what they know.

Recall that psychology is the scientific study of behaviour and mental functioning of individuals. It is scientific because it uses the principles and practices of the scientific method.

ROLE OF THEORIES, HYPOTHESES AND PARADIGMS IN PSYCHOLOGICAL RESEARCH

Psychological research focuses on four sets of concerns:

- i) the stimulus events that cause a particular response to start, stop, or change in quality of quantity;
 - ii) the structure of behaviour that links certain actions in predictable, orderly ways to other actions;
 - iii) the relationships between internal psychological processes or psychological mechanisms and observable behaviour patterns; and
 - iv) the consequences that behaviour has on the individual's social and physical environment.
- Researchers begin with the assumption of determinism, the idea that all events (physical, mental and behavioural) result from specific causal factors.

Researchers also assume that behaviour and mental processes follow set patterns of relationships that can be discovered and revealed through research. Psychological theories, in general, attempt to understand how brain, mind, behaviour, and environment function and how they may be related.

Any particular theory focuses on a more specific aspect of this broad conception, using a body of interrelated principles to explain or predict some psychological phenomenon. The value of a theory is often measured in terms of the new ideas, or hypotheses, that can be derived from it and tested.

A hypothesis is a tentative and testable explanation of the relationship between two or more events or variables. A variable is any factor that changes, or varies, in size or quality. To illustrate this mood may be a variable, since people's moods may vary from one situation to another. Test performance is another variable, since a person's score may vary from one test to the next.

A hypothesis is a testable explanation of the relationship between variables, it is a tentative proposition based on observations, or it could be a hunch about how ideas go together. An instructor, for example, may have a hypothesis about how varying teaching techniques will cause changes in students' test scores. Thus, instructor may have formed this hypothesis by observing students; idea about better teaching techniques is also generated from research in educational psychology.

RESEARCH BIASES

One of the challenges, while doing research is to remain objective and free from biases. Most of your ideas and beliefs are probably linked with certain bias because they are influenced by your opinions or values. A variety of biases have been found to distort people's impressions of collected data. External influences such as one's culture or the media can influence people to accept a particular world view.

Personal bias distorts estimating or evaluating processes as a result of personal beliefs, attributes, or past experiences. Observer bias operates when one's biases act as "filters" through which some events are noticed or seen as meaningful while others are not. It must be kept in mind that researchers themselves were raised in certain cultures and societies. They also might have been exposed to certain gender role expectations. These background factors can all affect the way that researchers observe and interpret events in their lives.

Expectancy bias can affect observations of behaviour by triggering reactions to the events being observed. Researchers sometimes expect to find specific outcomes, and being only human, they may see what they expect to see rather than remain objective.

Unfortunately, if one is not alert to the possibility of expectancy bias, it may seem as though the observed events are being "discovered" instead of created by the observer's expectations.

PURPOSE AND DIMENSIONS OF PSYCHOLOGY

GOALS AND OBJECTIVES OF PSYCHOLOGICAL RESEARCH

Every science has goals. In physics, the goals are concerned with learning how the physical world works. In astronomy, the goals are to chart the universe and understand both how it came to be and what it is becoming.

The goals of psychologist conducting basic research are to describe, explain, and predict and control behaviour. The applied psychologist has a fifth goal also, that is application of psychological techniques and principles to improve the quality of human life.

Most applied psychologist are able to conduct their own basic research, scientifically studying particular problem in order to solve them. The process of accomplishing one goal and moving on to the next is ideally a natural, flowing, experience, energized, by the psychologist's interest in the question being studied.

The first step in understanding anything is to give it a name. Description involves observing a behaviour and noting everything about it, as for example, what is happening, where it happens, to whom it happens, and under what circumstances it happens.

EXPLANATION:

To find out why the girl is not behaving properly, the teacher would most likely ask the school counselor to administer some tests. Her parents might be asked to take her to a pediatrician to make sure that there is no physical illness, such as an allergy. They might also take her to a psychologist to be assessed. In other words, the teacher and others are looking for an explanation for the young girl's behaviour. Finding explanation for behaviour is a very important step in the process of forming theories of behaviour. A theory is a general explanation of a set of observations or facts.

The goal of description provides the observations, and the goal of explanation helps to build the theory. If all the tests seem to indicate that the young girl has a learning problem, such as dyslexia (an inability to read at expected levels for a particular age and degree of intelligence), the next step would be trying to predict what is likely to happen if the situation stays the same.

PREDICTION:

When Will it Happen Again? Determining what will happen in the future is a prediction. In the example, the psychologist or counselor would predict (based on previous research into similar situations), that this little girl will probably continue to do poorly in her schoolwork and may never be able to reach her full learning potential.

Clearly, something needs to be done to change this prediction, and that is the point of the last of the four goals of psychology: changing or modifying behaviour.

CONTROL :

How can it be Changed ? Control, or the modification of some behaviour, has been somewhat controversial in the past. Some people hear the word control and think it is brainwashing, but that is not the focus of this goal. The goal is to change a behaviour from an undesirable one (such as failing in school) to a desirable one (such as academic success).

Such efforts also include attempts at improving the quality of life. In the example of the young girl, there are certain learning strategies that can be used to help a child (or an adult) who has dyslexia . She can be helped to improve her reading skills.(Aylward etal,2003;Shaywitz,1996). The psychologist and educators would work together to find a training strategy that works best for this particular girl.

APPLICATION

Improving the quality of life Psychological research are often conducted to solve various problems faced by the society at different levels such as individual, organisation, or community.

Psychological applications to solve problems in diverse settings, such as in a classroom in a school, or in an industry, or in a hospital, or even in a military establishment, demand professional help.

Applications in the health sector are remarkable. Because of these efforts quality of life becomes a major concern for psychologists. Not all psychological investigations will try to meet all five of these goals. In some cases, the main focus might be on description and prediction, as it would be for a personality theorist who wants to know what people are like (description) and what they might do in certain situation (prediction).

Some psychologists are interested in both description and explanation, as is the case with experimental psychologists who design research to find explanations for observed (described) behaviour. Therapists, of course, would be more interested in control, although the other four goals would be important in getting to that goal.

DIMENSIONS OF PSYCHOLOGICAL WELL-BEING

The six dimensions reflected within psychological well-being are as follows:

1. SELF-ACCEPTANCE

This dimension speaks of the acceptance of every aspect of an individual and of one's own past, just as it happened. This means without falling into a pit of impotence for wanting to modify or intervene in what happened.

Think about whether you accept your body, your emotions and your thoughts. If you do, you'll have a

more positive view of yourself. Instead, if you have low self-esteem and struggle to accept who you are, it's possible that due to this dissatisfaction, **you'll feel so overwhelmed that you don't even know where to begin changing those aspects you actually can intervene in.**

2. CONTROL OVER YOUR SURROUNDINGS

This dimension refers to the ability to deal with a difficult environment, having the ability to adapt to adverse circumstances.

If you have a high perception of your **control** over your surroundings, you'll feel capable of influencing your environment and managing complicated situations. Instead, if you have low control over your surroundings, according to the psychological well-being questionnaire, you'll have greater difficulty overcoming the adversities which arise in your day-to-day life.

3. POSITIVE RELATIONSHIPS WITH OTHERS

This dimension measures the ability people have to interact with others in an open and sincere way.

If you're capable of having satisfactory relationships with others, you will promote bonds which will provide you with better emotional quality. **This implies having a greater capacity of empathy and openness towards people.** If you have a lower score on this scale, it's possible you struggle to interact with others. You might have difficulties opening up and trusting others, as well as difficulties maintaining your relationships.

4. AUTONOMY

This dimension evaluates the independence of people in different aspects of their lives. The sensation of being able to choose and make their own decisions, of maintaining a personal criteria and personal and **emotional** independence despite others not being in agreement.

A high degree of autonomy implies that you're able to deploy a greater force of resistance against social pressure and your own impulses. **If, instead, you have a low degree of autonomy, you might be letting other people's opinions guide you.** You also might pay attention to what others say or think about you and might let yourself be led by social pressure within your social circle.

5. PERSONAL GROWTH

This dimension measures the ability people have of learning from themselves, being open to new experiences and challenges.

If you promote your personal growth, it's possible you feel that you're on a continuous journey of learning. You might feel that you have the ability to learn from what you receive and know that you have the resources needed to improve. **If this whole personal growth thing is not your style, you might feel stuck, bored and demotivated.** You might not really want to develop new lessons and new growth behaviors. Or, you might simply feel incapable of it.

6. LIFE PURPOSE

This measures the need people have of finding a purpose that will give meaning to their lives. People need to set clear and acceptable **goals** for themselves. These need to be realistic objectives. If have a high score in this dimension, it means that you feel your life has meaning. You give meaning to your past, present and future. **If, instead, you score poorly in this dimension, you don't have a**

clear purpose. It's possible you feel that your life lacks direction or you might even feel disoriented and lost.

7. SOCIAL SUPPORT: THE BEST PILLAR OF OUR WELL-BEING

Social support is a protective factor against various diseases. It's very important how our social relationships are and also how we perceive them to be.

- **People who are emotionally intelligent are more optimistic, have higher self-esteem and have a greater capacity for empathy.** This contributes to the improvement of our psychological well-being. People who know how to identify their emotions feel more satisfied with themselves. Therefore, they feel a greater sense of overall well-being. **Find your passion** It might be at work, since that's where you spend many hours of your day. And it's best if you spend them doing something that motivates you. But you can also find something you like in a hobby which makes you feel fulfilled. For example, music, a sport or craftsmanship.
- **DON'T TRY TO CHANGE YOURSELF**
Accept yourself in the dimensions you cannot change. Trying to change yourself is going to generate unease and rejection. You will improve your well-being if you give yourself and your own nature a chance. This way, all of the positive things you find will serve to improve your self-esteem, because you will acknowledge it as your own. The same thing will happen with the negative things you find.
- **SURROUND YOURSELF WITH PEOPLE WHO HAVE A GOOD ENERGY**
Positive relationships, being with people you like and who fulfill you is an **important factor** which directly influences your physical and emotional well-being. **Toxic people will reduce your psychological well-being and add stress to your life.**

RESEARCH PROBLEMS IN PSYCHOLOGY RESEARCH PROBLEMS IN PSYCHOLOGY

Your thesis in Psychology should **ask and answer a specific question**, rather than broadly discuss a large topic area. Furthermore, your research problem should **suggest one or more subsequent questions** to your readers.

The statement of the research problem should be **precise** and **concise**. It should be coherent enough that you can readily discuss it with family or friends - and that they will understand it.

It is recommended that you go over the four key parts (**Research Question, Hypothesis, Evidence, Conclusions & Broader Implications**) in an outline **before** you start to write your proposal.

- You may find it easier to write the Research Problem last, after you have already reviewed the literature in the Background of the Problem section, and fleshed out your Research Method
- **THIS MAY HELP YOU TO FOCUS YOUR RESEARCH PROBLEM AND KEEP IT CONCISE**

Nature and Meaning

A scientific inquiry starts when a researcher has already collected some information/ knowledge and that knowledge indicates that there is something we do not know. It may be that we simply do not have enough information to answer a question, or it may be that the knowledge that we have is in such state of distorted form that it cannot be adequately related to the question. Here a problem arises.

The formulation of a problem is especially important, as it guides us in our inquiry. According to

Townsend (1953) 'a problem is a question proposed for solution'. According to Kerlinger (1964) 'A problem is interrogative sentence of statement that asks: What relation exists between two or more variables'. According to McGuigan (1964) 'A solvable problem is one that poses a question that can be answered with the use of man's normal capacities'.

CHARACTERISTICS OF A SCIENTIFIC PROBLEM

After analysing above written definitions of a problem statement, it can be said there are certain characteristics of a problem statement:

1. A problem statement is written clearly and unambiguously, usually in question form.
2. A problem expresses the relationship between two or more than two variables. This kind of problem permits the investigator to manipulate two or more than two variables to examine the effects upon the other variables. For example: Do teacher reinforcement cause improvement in student performance? In this example, one variable is teacher reinforcement and the other variable is student performance. It illustrates the problem found in a scientific study because the problem statement explores the effect of teacher's reinforcements on student performance. The conditions for a problem statement are:

The problem should be testable by empirical methods

- λ A problem statement should be solvable
- .λ The data of a scientific problem should be quantitative
- .λ The variable relating to the problem should be clear and definite

WAYS IN WHICH A PROBLEM IS MANIFESTED

A problem is said to exist when we know enough that there is something we do not know really. There are atleast three ways in which a problem is said to be manifested: Gap in knowledge: A problem is manifested when there is a noticeable gap or absence of information. Suppose a community or group intends to provide psychotherapeutic services, two questions arise, viz.,

- (i) What kind of psychotherapy they should offer and
- (ii) Which one of the different forms of therapeutic methods is most effective for a given type of mental disease. In this example, there exists a noticeable gap in the knowledge, and hence the collection of necessary data and their explanation are needed for filling the gap in knowledge. Contradictory results:

When several investigations done in the same field are not consistent and therefore, at times, contradictory, a problem is to find out a new answer and settle the controversy. Explaining a Fact: Another way in which we become aware of a problem is when we are in possession of a 'fact', and we ask ourselves, "Why is this so?" When the facts in any field are found in terms of unexplained information, a problem is said to exist.

THE IMPORTANCE OF FORMULATING A RESEARCH PROBLEM

The formulation of a research problem is the first and most important step of the research process. It is like the identification of a destination before undertaking a journey. As in the absence of a destination, it is impossible to identify the shortest route, so also in the absence of a clear research problem, a clear and economical plan is impossible. A research problem is like the foundation of a

building.

The type and design of the building is dependent upon the foundation. If the foundation is well designed and strong you can expect the building to be also strong and well designed. In the case of research, the research problem serves as the foundation of a research study. If it is well formulated, you can expect a good study to follow.

VARIABLES USED IN PSYCHOLOGY RESEARCH

Meaning of Variable

A variable, as the name implies, is something which varies. This is the simplest and the broadest way of defining a variable. Webster says that a variable is “a thing that is changeable” or “a quantity that may have a number of different values.” True, a variable is something that has at least two values, however, it is also important that the values of the variable be observable.

Thus, if what is being studied is a variable, it has more than one value and each value can be observed. For example, the outcome of throwing a die is a variable. That variable has six possible values (each side of the die has from one to six dots on it), each of which can be observed. In psychology, the variables of interest are often behaviours or the causes of behaviours. Many psychologists have adopted a theoretical viewpoint or model called the S-O-R model to explain all behaviour.

A variable is something that can be changed or varied, such as a characteristic or value. Variables are generally used in psychology experiments to determine if changes to one thing result in changes to another.

Variables play a critical role in the psychological research process. By systematically varying some variables and measuring the effects on other variables, researchers can determine if changes to one thing result in changes in something else.

The Dependent and Independent Variables In a psychology experiment:¹

- The **independent variable** is the variable that is controlled and manipulated by the experimenter. For example, in an experiment on the impact of sleep deprivation on test performance, sleep deprivation would be the independent variable.
- The **dependent variable** is the variable that is measured by the experimenter. In our previous example, the scores on the test performance measure would be the dependent variable.

EXTRANEOUS AND CONFOUNDING VARIABLES

It is important to note that the independent and dependent variables are not the only variables present in many experiments. In some cases, extraneous variables may also play a role. This type of variable is one that may have an impact on the relationship between the independent and dependent variables.

For example, in our previous description of an experiment on the effects of sleep deprivation on test performance, other factors such as age, gender, and academic background may have an impact on the results. In such cases, the experimenter will note the values of these extraneous variables so this impact on the results can be controlled for.

THERE ARE TWO BASIC TYPES OF EXTRANEOUS VARIABLES:

1. **Participant Variables:** These extraneous variables are related to individual characteristics of each participant that may impact how he or she responds. These factors can include background differences, mood, anxiety, intelligence, awareness and other characteristics that are unique to each person.
2. **Situational Variables:** These extraneous variables are related to things in the environment that may impact how each participant responds. For example, if a participant is taking a test in a chilly room, the temperature would be considered an extraneous variable. Some participants may not be affected by the cold, but others might be distracted or annoyed by the temperature of the room.

OTHER EXTRANEOUS VARIABLES INCLUDE THE FOLLOWING:

- **Demand characteristics:** Clues in the environment that suggest how a participant should behave
- **Experimenter effects:** When a researcher unintentionally suggests clues for how a participant should behave

In many cases, extraneous variables are controlled for by the experimenter. In the case of participant variables, the experiment might select participants that are the same in background and temperament to ensure that these factors do not interfere with the results. Confounding Variables
If a variable cannot be controlled for, it becomes what is known as a **confounding variable**. This type of variable can have an impact on the dependent variable, which can make it difficult to determine if the results are due to the influence of the independent variable, the confounding variable or an interaction of the two.

OPERATIONALLY DEFINING A VARIABLE PSYCHOLOGY

Before conducting a psychology experiment, it is essential to create firm operational definitions for both the independent variable and dependent variable. An operational definition describes how the variables are measured and defined in the study.¹

For example, in our imaginary experiment on the effects of sleep deprivation on test performance, we would need to create very specific operational definitions for our two variables. If our hypothesis is "Students who are sleep deprived will score significantly lower on a test," then we would have a few different concepts to define. First, what do we mean by students? In our example, let's define students as participants enrolled in an introductory university-level psychology course.

Next, we need to operationally define the sleep deprivation variable. In our example, let's say that sleep deprivation refers to those participants who have had less than five hours of sleep the night before the test. Finally, we need to create an operational definition for the test variable. For this example, the test variable will be defined as a student's score on a chapter exam in the introductory psychology course.

Students often report problems with identifying the independent and dependent variables in an experiment. While the task can become more difficult as the complexity of an experiment increases, there are a few questions you can ask when trying to identify a variable.

What is the experimenter manipulating? The things that change, either naturally or through direct manipulation from the experimenter, are generally the independent variables. What is being measured? The dependent variable is the one that the experimenter is measuring.

Every good psychology study contains an operational definition for the variables in the research. An operational definition allows the researchers to describe in a specific way what they mean when they use a certain term. Generally, operational definitions are concrete and measurable. Defining variables in this way allows other people to see if the research has validity. Validity here refers to if the researchers are actually measuring what they intended to measure.

Example One:

A researcher wants to measure if age is related to addiction. Perhaps their hypothesis is: the incidence of addiction will increase with age. Here we have two variables, age and addiction. In order to make the research as clear as possible, the researcher must define how they will measure these variables. Essentially, how do we measure someone's age and how to we measure addiction?

Variable One: Age might seem straightforward. You might be wondering why we need to define age if we all know what age is. However, one researcher might decide to measure age in months in order to get someone's precise age, while another researcher might just choose to measure age in years. In order to understand the results of the study, we will need to know how this researcher operationalized age. For the sake of this example lets say that age is defined as how old someone is in years.

Variable Two: The variable of addiction is slightly more complicated than age. In order to operationalize it the researcher has to decide exactly how they want to measure addiction. They might narrow down their definition and say that addiction is defined as going through withdrawal when the person stops using a substance. Or the researchers might decide that the definition of addiction is: if someone currently meets the DSM-5 diagnostic criteria for any substance use disorder. For the sake of this example, let's say that the researcher chose the latter.

Final Definition: In this research study age is defined as participant's age measured in years and the incidence of addiction is defined as whether or not the participant currently meets the DSM-5 diagnostic criteria for any substance use disorder.

Need Operational Definitions

There are a number of reasons why researchers need to have operational definitions including:

- Validity
- Replicability
- Generalizability
- Dissemination

The first reason was mentioned earlier in the post when reading research others should be able to assess the validity of the research. That is, did the researchers measure what they intended to measure? If we don't know how researchers measured something it is very hard to know if the study had validity.

The next reason it is important to have an operational definition is for the sake of replicability Research should be designed so that if someone else wanted to replicate it they could. By replicating research and getting the same findings we validate the findings. It is impossible to recreate a study if we are unsure about how they defined or measured the variables.

Another reason we need operational definitions is so that we can understand how generalizable the findings are. In research, we want to know that the findings are true not just for a small sample of people. We hope to get findings that generalize to the whole population. If we do not have operational definitions it is hard to generalize the findings because we don't know who they generalize to.

Finally, operational definitions are important for the dissemination of information. When a study is done it is generally published in a peer-reviewed journal and might be read by other psychologists, students, or journalists. Researchers want people to read their research and apply their findings. If the person reading the article doesn't know what they are talking about because a variable is not clear it will be hard to them to actually apply this new knowledge.

HYPOTHESIS OF PSYCHOLOGY

In conducting research, the second important consideration after the formulation of a research problem is the construction of hypothesis. As you know any scientific inquiry starts with the statement of a solvable problem, when the problem has been stated, a tentative solution in the form of testable proposition is offered by the researcher.

The testable proposition and potential answer are termed a hypothesis Therefore a hypothesis is nothing but a suggested, testable and proposed answer to a problem. By stating a specific hypothesis, the researcher narrows the focus of the data collection effort and is able to design a data collection procedure which is aimed at testing the plausibility of the hypothesis as a possible statement of the relationship between the terms of the research problem.

Definition of Hypothesis Several experts have defined hypothesis more or less in the same way. According to Kerlinger (1973), a hypothesis is a conjectural statement of the relation between two or more variables. According to Mcquigan (1970) hypothesis is a testable statement having the potential relationship between two or more variables. In other words, the hypothesis in one way is advanced as a potential solution to problem.

On the basis of these definitions two criteria for good hypothesis and hypothesis statement can be suggested: i) Hypotheses are statements about the relation between variables. ii) Hypotheses carry clear implication for testing the stated relations. These criteria mean that hypothesis contains two or more variables which are measurable or potentially measurable and hypothesis exhibits either a general or specific relationship between the variables.

CHARACTERISTICS OF A HYPOTHESIS

There are a number of considerations one should keep in mind when constructing a hypothesis, as they are important for valid verification. Hypothesis should be simple, specific and conceptually clear.

There is no place of ambiguity in the construction of a hypothesis it should be 'unidimensional i.e. it should test only one relationship at a time. For example; the average scores in maths subjects of the male students in the class is higher than the female students. Suicides rates very inversely with the social cohesion (Black & Champion 1976).

- A Hypothesis thus should be capable of verification: methods and techniques must be available for data collection. A hypothesis should be operationisable. This means that it can be expressed in terms that can be measured. If it cannot be measured and tested and, hence, no

conclusions can be drawn.

- A Hypothesis should be related to the existing body of knowledge. A hypothesis has equal chances of confirmation and rejection.
- A hypothesis should be parsimonious. (economical)
- A hypothesis should be method oriented. In the construction of hypotheses the student must observe the above mentioned rules.

Forming acceptable hypotheses is not difficult if the problem giving rise to the hypotheses has been carefully stated and defined. The form of a hypothesis can be a declarative statement containing a suggested answers to the problem, and which obeys the formal conditions of hypothesis. Following are two examples of problems and their respective hypothesis. Problem

1: Does practice with the preferred hand improve the proficiency of the nonpreferred hand in the mirror drawing experiment ? Hypothesis: Practice with the preferred hand significantly improves the proficiency of the nonpreferred hand in the mirror drawing experiment. Problem

2: Are male rats more active than the same strain of female rats during a 6- day period spent in an activity cage ? Hypothesis: Male rats are not significantly more active than the same strain of female rats during a 6-day period spent in an activity cage.

Functions of Hypothesis A hypothesis serves the following functions:

- i) The formulation of a hypothesis provides a study with focus.
- ii) It tells you what specific aspects of a research problem to investigate
- iii) It tells what data to collect and what not to collect
- iv) The construction of a hypothesis enhances objectivity in a study. The process of testing a hypothesis goes through 3 phases as given below (Kumar, 2002 : Research methodology))

Phase I: Formulate your hunch or assumption Phase II: Collect the required data Phase III: Analyse data to draw conclusion about the hunch – true or false. A hypothesis may enable you to add to the formulation of theory. It enables you to specifically conclude what is true or what is false.

Let's consider a hypothesis that many teachers might subscribe to: that students work better on Monday morning than they do on a Friday afternoon (IV=Day, DV=Standard of work).

Now, if we decide to study this by giving the same group of students a lesson on a Monday morning and on a Friday afternoon and then measuring their immediate recall on the material covered in each session we would end up with the following:

- The **alternative hypothesis** states that students will recall significantly more information on a Monday morning than on a Friday afternoon.
- The **null hypothesis** states that there will be no significant difference in the amount recalled on a Monday morning compared to a Friday afternoon. Any difference will be due to chance or confounding factors.

SAMPLING OF PSYCHOLOGY

- Sampling is the process of selecting a representative group from the population under study.
- The target population is the total group of individuals from which the sample might be drawn.
- A sample is the group of people who take part in the investigation. The people who take part are referred to as "participants".

- Generalisability refers to the extent to which we can apply the findings of our research to the target population we are interested in.

THE PURPOSE OF SAMPLING

In psychological research we are interested in learning about large groups of people who all have something in common. We call the group that we are interested in studying our 'target population'. In some types of research the target population might be as broad as all humans, but in other types of research the target population might be a smaller group such as teenagers, pre-school children or people who misuse drugs.

It is more or less impossible to study every single person in a target population so psychologists select a sample or sub-group of the population that is likely to be representative of the target population we are interested in.

This is important because we want to generalize from the sample to target population. The more representative the sample, the more confident the researcher can be that the results can be generalized to the target population.

One of the problems that can occur when selecting a sample from a target population is sampling bias. Sampling bias refers to situations where the sample does not reflect the characteristics of the target population.

Many psychology studies have a biased sample because they have used an opportunity sample that comprises university students as their participants (e.g. Asch).

OK, so you've thought up this brilliant psychological study and designed it perfectly. But who are you going to try it out on and how will you select your participants?

There are various sampling methods. The one chosen will depend on a number of factors (such as time, money etc.).

Random Sampling

Random sampling is a type of probability sampling where everyone in the entire target population has an **equal chance** of being selected.

This is similar to the national lottery. If the "population" is everyone who has bought a lottery ticket, then each person has an equal chance of winning the lottery (assuming they all have one ticket each).

Random samples require a way of naming or numbering the target population and then using some type of raffle method to choose those to make up the sample. Random samples are the best method of selecting your sample from the population of interest.

The **advantages** are that your sample should represent the target population and eliminate sampling bias, but the **disadvantage** is that it is very difficult to achieve (i.e. time, effort and money).

OPPORTUNITY SAMPLING

Uses people from target population available at the time and willing to take part. It is based on **convenience**.

An opportunity sample is obtained by asking members of the population of interest if they would take part in your research. An example would be selecting a sample of students from those coming out of the library.

ETHICS IN CONDUCTING AND REPORTING RESEARCH OF PSYCHOLOGY

Ethics refers to the correct rules of conduct necessary when carrying out research. We have a moral responsibility to protect research participants from harm.

However important the issue under investigation psychologists need to remember that they have a duty to respect the rights and dignity of research participants. This means that they must abide by certain moral principles and rules of conduct.

In Britain, ethical guidelines for research are published by the British Psychological Society and in America by the American Psychological Association. The purpose of these codes of conduct is to protect research participants, the reputation of psychology, and psychologists themselves.

ETHICAL ISSUES IN PSYCHOLOGY

1. Informed Consent
2. Debrief
3. Protection of Participants
4. Deception
5. Confidentiality
6. Withdrawal

Moral issues rarely yield a simple, unambiguous, right or wrong answer. It is therefore often a matter of judgment whether the research is justified or not. For example, it might be that a study causes psychological or physical discomfort to participants, maybe they suffer pain or perhaps even come to serious harm.

On the other hand, the investigation could lead to discoveries that benefit the participants themselves or even have the potential to increase the sum of human happiness. Rosenthal and Rosnow (1984) also talk about the potential costs of failing to carry out certain research. Who is to weigh up these costs and benefits? Who is to judge whether the ends justify the means?

Finally, if you are ever in doubt as to whether research is ethical or not it is worthwhile remembering that if there is a conflict of interest between the participants and the researcher it is the interests of the subjects that should take priority.

Studies must now undergo an extensive review by an institutional review board (US) or ethics committee (UK) before they are implemented. All UK research requires ethical approval by one or more of the following:

- (a) Department Ethics Committee (DEC): for most routine research.
- (b) Institutional Ethics Committee (IEC): for non routine research.
- (c) External Ethics Committee (EEC): for research that is externally regulated (e.g. NHS research).

Committees review proposals assess if the potential benefits of the research are justifiable in the

light of the possible risk of physical or psychological harm. These committees may request researchers make changes to the study's design or procedure, or in extreme cases deny approval of the study altogether.

The British Psychological Society (BPS) and American Psychological Association (APA) have both issued a code of ethics in psychology that provides guidelines for the conduct of research. Some of the more important ethical issues are as follows:

INFORMED CONSENT

Whenever possible investigators should obtain the consent of participants. In practice, this means it is not sufficient to simply get potential participants to say "Yes". They also need to know what it is that they are agreeing to. In other words, the psychologist should, so far as is practicable explain what is involved in advance and obtain the informed consent of participants.

Before the study begins the researcher must outline to the participants what the research is about, and then ask their consent (i.e. permission) to take part. An adult (18ys +) capable of giving permission to participate in a study can provide consent. Parents/legal guardians of minors can also provide consent to allow their children to participate in a study.

However, it is not always possible to gain informed consent. Where it is impossible for the researcher to ask the actual participants, a similar group of people can be asked how they would feel about taking part. If they think it would be OK then it can be assumed that the real participants will also find it acceptable.

In order that consent be 'informed', consent forms may need to be accompanied by an information sheet for participants setting out information about the proposed study (in lay terms) along with details about the investigators and how they can be contacted.

PARTICIPANTS MUST BE GIVEN INFORMATION RELATING TO:

- A statement that participation is voluntary and that refusal to participate will not result in any consequences or any loss of benefits that the person is otherwise entitled to receive.
- Purpose of the research.
- All foreseeable risks and discomforts to the participant (if there are any). These include not only physical injury but also possible psychological.
- Procedures involved in the research.
- Benefits of the research to society and possibly to the individual human subject.
- Length of time the subject is expected to participate.
- Person to contact for answers to questions or in the event of injury or emergency.
- Subjects' right to confidentiality and the right to withdraw from the study at any time without any consequences.

DEBRIEF

After the research is over the participant should be able to discuss the procedure and the findings with the psychologist. They must be given a general idea of what the researcher was investigating and why, and their part in the research should be explained.

Participants must be told if they have been deceived and given reasons why. They must be asked if they have any questions and those questions should be answered honestly and as fully as possible. Debriefing should take place as soon as possible and be as full as possible; experimenters should take reasonable steps to ensure that participants understand debriefing.

“The purpose of debriefing is to remove any misconceptions and anxieties that the participants have about the research and to leave them with a sense of dignity, knowledge, and a perception of time not wasted” (Harris, 1998).

The aim of the debriefing is not just to provide information, but to help the participant leave the experimental situation in a similar frame of mind as when he/she entered it (Aronson, 1988).

PROTECTION OF PARTICIPANTS

Researchers must ensure that those taking part in research will not be caused distress. They must be protected from physical and mental harm. This means you must not embarrass, frighten, offend or harm participants.

Normally, the risk of harm must be no greater than in ordinary life, i.e. participants should not be exposed to risks greater than or additional to those encountered in their normal lifestyles. The researcher must also ensure that if vulnerable groups are to be used (elderly, disabled, children, etc.), they must receive special care. For example, if studying children, make sure their participation is brief as they get tired easily and have a limited attention span.

WHAT IS PARADIGMS OF RESEARCH: QUANTITATIVE, QUALITATIVE, MIXED METHODS APPROACH METHODS OF RESEARCH: OBSERVATION, SURVEY [INTERVIEW, QUESTIONNAIRES], EXPERIMENTAL, QUASI- EXPERIMENTAL, FIELD STUDIES, CROSS-CULTURAL STUDIES, PHENOMENOLOGY, GROUNDED THEORY, FOCUS GROUPS, NARRATIVES, CASE STUDIES, ETHNOGRAPHY?

PARADIGMS OF RESEARCH: QUANTITATIVE, QUALITATIVE, MIXED METHODS APPROACH METHODS OF RESEARCH: OBSERVATION, SURVEY [INTERVIEW, QUESTIONNAIRES], EXPERIMENTAL, QUASI-EXPERIMENTAL, FIELD STUDIES, CROSS-CULTURAL STUDIES, PHENOMENOLOGY, GROUNDED THEORY, FOCUS GROUPS, NARRATIVES, CASE STUDIES, ETHNOGRAPHY

The Paradigms of research: Quantitative, Qualitative, Mixed methods approach

METHODS OF RESEARCH:

The aim of this paper is to discuss the philosophical tenets of the major research frameworks which postgraduate students in educational research work with but which they are often confused about. Such a clarification is important inasmuch as it determines not only the research methodology which will be followed but also the choice of the appropriate research methods and the procedure used for the analysis of the collected data. The various research schemes and their corresponding philosophical background will be discussed and concrete examples will be provided to help research students better understand the issues at stake.

These definitions of educational research point at some important issues: First and foremost, the

research procedure must answer the canons of 'science' then, the information provided must be reliable, and finally, what is being investigated should be of interest to educators who may carry out their research within or outside the educational institution. Also implicit in these definitions is the fact that educational research must use the same methods as those used in natural sciences in order to come up with answers aimed at improving teaching and learning as well as identifying the conditions for testing and verifying this knowledge and the conditions under which it should occur. It is thus of paramount importance for research students to grasp the fundamentals of these issues since they determine the choices they have to make at all stages of their research which invariably include the following: the choice of a research framework, the selection of the appropriate research tools for the collection of the data, the procedure(s) to be followed for their analysis, and ultimately, the nature of the conclusions they will have to draw. They must be aware that all existing research frameworks reflect shifts in scientific thought which can be traced back to the debate among leading Greek philosophers as to how new knowledge is acquired.

These philosophers challenged earlier explanations based on theological tenets and argued that a better and more systematic understanding of the world could be obtained either through our senses as the empiricist school claimed, or through logical reasoning as the rationalist school believed. Subsequent shifts in scientific thought, as we shall see, will lead to new perceptions as to how knowledge can be derived from, leading thus to new research paradigms.

Justify the choice of a particular framework or paradigm. The latter is defined by Chalmers (1982:11) as being "made up of the general theoretical assumptions and laws, and techniques for their application that the members of a particular scientific community adopt", and by Willis (2007:8) as "a comprehensive belief system, world view, or framework that guides research and practice in a field" Such understanding will hopefully help them make the appropriate choices about :

- (1) Their research question(s) or hypothesis
 - (2) the type of the research instruments to be used,
 - (3) the steps involved in the collection of the data, and ultimately
 - (4) the procedure used for the analysis and discussion of the collected data
- We shall briefly explain how these shifts in scientific thought have occurred and how they have led to the major shifts in research paradigms and then, we shall show how these shifts had an impact on research methods and methodologies.

It will be reminded that the term 'method' is used to refer to the research instruments used to collect and analyse data, e.g. a questionnaire, interview, checklist, data analysis software etc.

RESEARCH PHILOSOPHY: HISTORICAL

Background The type of research methodology the researcher chooses is determined by the research philosophy which the researcher adheres to and this choice will determine the research objective(s) and the research instruments developed and used as well as the quest for the solution to the problem he is investigating. So far, Empiricism and Rationalism have been the most prevailing research philosophies.

These can be traced back to the debate we mentioned earlier between the Empiricists who were inductivists and the Rationalists who were deductivists. These two opposing views will follow different ways in explaining how knowledge is acquired: either through inductive reasoning as the

Empiricists believed or by reasoning as the Rationalists maintained. Therefore, the Inductive/Deductive distinction can be considered as the first major paradigm in science.

The Inductive reasoning (or bottom-up process) starts from specific observations and moves towards a general conclusion or theory. For example, I observe that all the elephants I have seen (repeated observations) have a trunk, therefore I conclude that ALL existing elephants, even those I have not seen, HAVE a trunk (conclusion, or generalisation). Whereas deductive reasoning (also known as top-down process) proceeds differently. The starting point is a general statement (called the first premise, or theory) followed by a more specific statement inferred from this (the second premise, or the observed phenomenon) and, through logical reasoning, reaches a specific conclusion. As an illustration, I know that all planets orbit around the sun (first premise), a new planet is discovered (second premise), therefore I can conclude that this planet also orbits the sun.

This debate was revisited after the Renaissance and witnessed a heated dispute between the Rationalists represented by the French philosopher René Descartes (1596–1650) who argued that Reason was the only mode through which one could arrive at truth and assumed thus, that knowledge could only be acquired if the appropriate reasoning procedure was used, and the Empiricists represented by the British philosophers John Locke (1632–1704) and David Hume (1711–1776) who argued that experience was the basis for acquiring all new knowledge.

It was Locke who put forward the well known formula that each person is born as a blank slate upon which the environment writes. For these philosophers our knowledge derives from our senses (sight, hearing, touch, smell, and taste) which then imprint ideas in our brain which are further worked upon through cognitive processes. However, it must be stressed that both trends were primarily concerned with natural sciences since at that time social sciences had no place as they were considered as being subjective and thus, not treated as real sciences.

RESEARCH PARADIGMS AND TYPES OF STUDIES

We shall now turn to discussing the implications that each paradigm has for the design of the various types of research studies in educational research. This is summarised in Figure 2 below, while Figure 3 lists the criteria to be used for identifying the various types of research, and Figure 4 lists all the research instruments which can be used in all three paradigms and for ensuring triangulation.

QUANTITATIVE RESEARCH STUDIES

There are two types of quantitative studies: either experimental or non experimental 3.1.1 Experimental studies Experimental studies can be either a true experiment, a quasi experiment or a single case study.

The latter is very rarely used in educational research because it is concerned with only one subject. However, one must keep in mind that the single-subject study may be seen as a true experiment because it as a long and respected tradition in empirical research particularly in psychology. According to Kazdin (2003:273), single-subject studies “can demonstrate causal relationships and can rule out or make implausible threats to validity with the same elegance of group research”. The single subject design has objectives similar to other experimental designs, in that

1. it looks at the changes in the dependent variable following the manipulation of the independent variable and

2. it tries to identify the causes of the differences brought about by the variations in the conditions of the study. As far as the other two types are concerned, what differentiates a true experiment from a quasi experiment study is the fact that in the former, the researcher can manipulate the variables under stringent and controlled conditions to study the effect or the impact of one variable (the independent, also called predictor one) on the other variable (the dependent, or outcome variable) to make statements of causality.

This type of research has weaker validity and poor reliability because the researcher cannot establish cause-and-effect relationships and cannot manipulate the predictor variables. Here are some examples for each type of research:

(i) True experimental :

- The effect of small classes on instruction
- The use of intensive mentoring to help beginning teachers develop balanced instruction

(ii) Quasi Experiment

- Are lectures given in the morning memorized better than when given in the afternoon?
- Do teachers' teaching styles play a role in students' motivation for learning?

Non experimental studies These are research studies in which there is no manipulation of the independent variable by the experimenter either for ethical reasons (for example the impact of smoking on health) or because of their abstract nature (for example age, gender , ethnicity opinions etc.). Non experimental research covers a wide variety of studies, such as

- descriptive,
 - causal-comparative,
 - correlational,
 - ex post facto research, and
 - surveys
- Descriptive research, as the name suggests, helps the researcher to collect data about conditions, situations, and events that occur in the present. For example:
 - a) Attitudes of parents toward introducing school outings on Sundays.
 - b) How do university teachers spend their time?
 - c) How do parents feel about a four day school schedule?
 - Causal-comparative research aims investigates the relation between the variables under study in order to identify possible causal relationships between them. For example :
 - a) Effect of birth order on academic achievement
 - b) The effect of having a working mother on school achievements
 - c) The effect of age on achievements in learning a foreign language
 - Correlational research is concerned with establishing possible but not necessarily present relationships between variables. Examples of correlational studies:
 - a) Do male students perform better than female in scientific subjects?
 - b) The relationship between parents' socio-economic status and their children's school achievements
 - c) The relationship between stress and achievement
 - Ex post facto research: Ex-post facto literally means "from what is done afterwards". It focuses first on the effect, then tries to determine possible causes and questions will remain about the effect following the cause, or vice versa. In this type of research, the researcher cannot control the

variables; his role is limited to reporting the outcome of an action or what is happening.

QUALITATIVE RESEARCH STUDIES

A means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem.

The process of research involves emerging questions and procedures. Data typically collected in the participant's setting. data analysis inductively building from particulars to general themes. and the researcher making interpretations of the meaning of the data.

This type of research relies primarily on collecting qualitative data (i.e., non-numerical or categorical data such as words and pictures etc.), and can be either interactive or non interactive (i.e. whether the researcher is personally.

INTERACTIVE

In educational research there is very little room for a personal involvement or immersion of the researcher with the participants of the study, as his role is mostly that of an observer. However, there may be instances where such research can be carried out. The first of these is phenomenology which is the descriptive study of how individuals experience a phenomenon. In this type of research the researcher aims at understanding how individuals' lives are organised and structured. For example:

- a) What are students' attitudes towards an uncaring teacher?
- b) What are teachers' attitudes and beliefs towards teaching?

The second major approach to qualitative research is ethnography (i.e., the discovery and description of the culture of a group of people). Because it is deeply rooted in anthropology the concept of culture is of central importance in this type of research. In the case of educational research one can study the culture in a classroom. Examples of these would be :

- a) How do learners react to cultural differences in foreign language classes?
- b) How do teachers deal with cultural conflicts in their classes?

NON INTERACTIVE

Non interactive qualitative studies are mainly concerned with historical analysis or content analysis. In historical analysis the researcher aims at establishing descriptions, and coming up, whenever possible, with explanations, of what has occurred. For example, a study can document

(i) the changes in the assessment procedures in EFL classes over the past ten years, or
(ii) the developments in the testing procedures of English in the Baccalaureate over the past twenty years. In content analysis the researcher analyzes written documents or other communication media (e.g., photographs, movies, advertisements) in a given topic in order to identify the information and symbols they contain . The researcher identifies a body of material to analyze (e.g., school textbooks, television programs, newspaper articles etc) and then posits a system for recording specific aspects of its content. Content analysis is a nonreactive method because the researcher didn't know about the content beforehand.

For example a researcher might be interested in investigating how school violence is reported in the media or how women are represented in school textbooks.

MIXED METHODS RESEARCH

This research paradigm is used extensively in educational research for its many merits. Thus, in

mixed methods researchers use both types of data because these combined provide the best understanding of a research problem. It has been defined variously by many researchers. For Janice Morse it is a plan for a scientifically rigorous research process comprised of a qualitative or quantitative core component that directs the theoretical drive, with qualitative or quantitative supplementary components. These components of the research fit together to enhance description, understanding and can either be conducted simultaneously or sequentially

CONCLUSION

Research is the acquisition of knowledge in a systematic and organised way. However, the routes leading to the discovery of this new knowledge varies according to the philosophical tenets to which the researcher adheres. This is why the research paradigms which determine the existing research methodologies cannot be fully grasped without a thorough understanding of the epistemological issues which underpin each of them . The inductive- deductive debate which will grow into the quantitative-qualitative methodologies is the direct result of evolving beliefs as to what constitutes the most efficient and most reliable way of carrying the research.

It is true however, that the nature of the data, either natural or social and psychological will direct the researcher to a great extent towards one or another methodology. The frontier between the two is becoming blurred and justifies the resort to a methodology which uses the strengths of the of the two major paradigms, i.e. a mixed method approach. As far as educational research is concerned the choice of one or another methodology depends very much on the nature of the variables being investigated and the more the researcher is aware of the philosophical tenets of the methodology he intends to use the easier the choice of the appropriate research process will be.

QUALITATIVE INQUIRY IN THE HISTORY OF PSYCHOLOGY

The great irony of qualitative inquiry in psychology is that, despite and in part due to its ubiquity, little history has been written. As our knowledge moves further into the past, it becomes murkier even though qualitative research has been practiced long before and continually since the establishment of psychology as an independent science. Studying historical roots is especially difficult because qualitative inquiry is performed in all fields and predates the current organization of knowledge by means of the various sciences, humanities, arts and professions. Moreover, an interdisciplinary cross fertilization of qualitative methods continues to flourish wildly today.

The historian, in the face of qualitative inquiry in psychology, must be awe struck. Such awe can inspire creative scholarship about the history of qualitative inquiry, and there is no better time than the present, which is more hospitable than ever before to such efforts. One of the aims of this article is to begin to address the question of what qualitative research is--what it looks like in psychology, by recognizing past instances of such practices that have not previously been identified as such.

Understanding these modes of inquiry will be greatly enhanced if we develop our sensitivities and bring this work out of the shadows, from the bottom up, with deliberately open naiveté. A second aim is to provide a rough sketch of a history of qualitative inquiry in psychology that differentiates phases from the founding of psychology to the present.

This sketch highlights landmark events as an invitation to appreciate such moments and identify others rather than to bring any closure to what is historically important. Finally, several examples of psychology conducted before the term "qualitative research" entered our vocabulary are presented

in order to illustrate the potential of historical exploration of the hidden treasures of this field. Now that these practices have finally become a thematic object of scientific interest, such reconnaissance work will inform and benefit present and future generations of psychologists, better positioning them to understand and use all available means of inquiry.

It is misleading to speak of “the” history of qualitative inquiry in light of the diversity and complexity of the field, which is virtually coextensive with psychology itself. The genealogy of qualitative research is not well represented by a tree with roots denoting precursors, a single trunk depicting a great inventor/pioneer, and many large and smaller branches extending in directions signifying the progress of followers to their most recently budding contributions. Rather, qualitative methods in psychology are better represented as an expansive forest with many trees of various ages and distances from each other, some growing symbiotically, some competing for sunlight and others ascending in isolation as they rise from subterranean root systems that intermingle in an invisible community from common and different kinds of nourishing soil.

Qualitative inquiry is ubiquitous because of its fundamental necessity and place in the enterprise of science. Scientific knowledge is inconceivable without some rational determination of what its subject matter is, and answers to the ‘what’ question require some manner of qualitative inquiry. Hypothesis testing and measurement, for instance, cannot proceed except on the basis of some conceptualization of what the hypothesis is about, what is to be observed and measured. The logic and practice of empirical science requires evidence, and the determination of its relevance and validity requires qualitative knowledge and judgment.

The equation of science with hypothesis testing has led to an emphasis on measurement issues and statistical reasoning, with little attention to inductive, interpretive, and other rational means of defining constructs, even though it is a crucial and indispensable part of all scientific research.

Qualitative inquiry and knowledge can range from being highly implicit and taken for granted, even free wheeling and unsystematic, to being rigorously established and accounted for with specially designed and critically evaluated research procedures. Qualitative reasoning and practices have not long been a part of our discipline’s formal methodology, and even today there is limited if any presentation of them in the education and training of research psychologists. The present examination focuses primarily on the self-conscious and deliberate scientific practice of qualitative research.

QUALITATIVE RESEARCH PRACTICE WITHOUT METHODOLOGY

Qualitative inquiry can certainly be traced back to ancient times, for instance in the work of Aristotle. The qualitative tradition of naturalism was developed and applied in psychology by Darwin (1871 & 1872), in his classic comparative investigations of emotions and moral sense. The tradition of case history, as a means of establishing general knowledge, had long been employed in medicine when Freud used it in his research on psychopathology (Freud & Breuer, 1895). Although the official founding of psychology in 1879 is marked by the first psychological laboratory, Wundt’s experimental work was only a part of the psychology he conceived and practiced. Recent historians (Danziger, 1983, 2003) inform us that Wundt viewed his 10 volume *Völkerpsychologie* (1900-1920, & 1916) translated as “social psychology,” “folk psychology,” or “cultural psychology”), involving qualitative research on language, expressive movement, imagination, art, mythology, religion, and morality, as equally important to laboratory research in the science of psychology. Psychologists of

no less stature than Sigmund and Anna Freud, Carl Jung, William James, E.B. Titchener, Max Wertheimer and the Gestalt school, Kurt Lewin, John Watson, Wilhelm Stern, Jean Piaget, Lev Vygotsky, Frederick Bartlett, John Dollard, Abraham Maslow, Lawrence Kohlberg, Carol Gilligan, Leon Festinger, Stanley Schacter, Philip Zimbardo, and David Rosenhan have also contributed ground breaking, well known research in psychology without their qualitative methods receiving much attention even to this date.

It is significant that the two psychologists who were awarded Nobel Prizes (in Economics)--Herbert Simon and Daniel Kahneman, both won their distinction by carrying out inquiries on thinking and problem solving by developing mathematical models based on verbal description and a qualitative analysis of everyday problem solving (Ericcson & Simon, 1993 & Kahneman, 2003). There can be little question that qualitative inquiry has played a very important part in the history of psychology. The Call for Qualitative Methodology In 1940, the Social Science Research Council, charged with improving the quality of research in the social sciences, enlisted the Committee on Appraisal of Research, chaired by Edmund Day, to appraise research on psychological and social life focusing on "the subjective factor" by using "human documents" as source materials.

The Committee asked Gordon Allport to investigate the use in psychology of "any self revealing record that intentionally or unintentionally yields information about the structure, dynamics, or functioning of the author's mental life" (Allport, 1942, p. xii). Allport's survey and evaluation, published in a 1942 monograph, addressed such questions as the nature of this first person materials (e.g., autobiographies, questionnaires, verbatim recordings such as interviews, diaries/journals, letters, and expressive/artistic productions); the history of the employment of such documents; attempts to establish the reliability and validity of procedures; how investigators accounted for their methods; the kind(s) of analyses used; the employment of induction, illustration and hypotheses; how inferences were generalized; and the biases or frames of reference of investigators. Allport estimated that although two or three hundred psychological authors had employed personal documents, no more than a dozen had given thought to the method they had employed, and there were very few critical studies of these methods.

THE DEVELOPMENT OF QUALITATIVE METHODOLOGIES

Qualitative research continued in psychology unabated, but Allport's monograph did not result in a widespread recognition of the value of these methods for more than a generation. In the next decade and through the 1960s, qualitative research was practiced and even developed, but the vast majority of researchers who continued to use these methods did so without accounting systematically for their procedures or asserting their scientific value. As mentioned above, one noteworthy example of such innovative studies is Kohlberg's 1954 dissertation. The details of his method were not reported in his subsequent publications and became available only when the actual dissertation was published in 1994, when qualitative research was becoming a common concern of psychologists. Only recently has this work begun to receive methodological attention (Wertz et al, 2011).

Other good examples of the continuing innovation and development of qualitative inquiry are Maslow's studies of the self-actualized personality (1954, 1968), which Maslow initially hesitated to publish because he himself viewed his method as of purely personal interest and insufficiently scientific. After Maslow submitted the self-actualization study for publication because he viewed the findings as important, the manuscript was rejected for publication by leading psychological journals.

A persistent Maslow delivered his very methodologically interesting study of self actualization as his presidential address to APA in 1958 and bitterly refused any further submission his work for publication in psychology's top tier journals. He viewed his methods as being of sufficient scientific value to continue and extend them in his fruitful investigation of peak experiences (1959), for which he gathered participants' descriptions of their best experiences, and disseminated his very influential research on self actualization and peak experiences in his books.

METHODS OF RESEARCH: OBSERVATION, SURVEY [INTERVIEW, QUESTIONNAIRES]

Primary Research: Definitions and Overview How research is defined varies widely from field to field, and as you progress through your college career, your coursework will teach you much more about what it means to be a researcher within your field.* For example, engineers, who focus on applying scientific knowledge to develop designs, processes, and objects, conduct research using simulations, mathematical models, and a variety of tests to see how well their designs work. Sociologists conduct research using surveys, interviews, observations, and statistical analysis to better understand people, societies, and cultures.

Graphic designers conduct research through locating images for reference for their artwork and engaging in background research on clients and companies to best serve their needs. Historians conduct research by examining archival materials— newspapers, journals, letters, and other surviving texts—and through conducting oral history interviews.

Rather, individuals conducting research are producing the articles and reports found in a library database or in a book. Primary research, the focus of this essay, is research that is collected firsthand rather than found in a book, database, or journal. Primary research is often based on principles of the scientific method, a theory of investigation first developed by John Stuart Mill in the nineteenth century in his book *Philosophy of the Scientific Method*.

Although the application of the scientific method varies from field to field, the general principles of the scientific method allow researchers to learn more about the world and observable phenomena. Using the scientific method, researchers develop research questions or hypotheses and collect data on events, objects, or people that is measurable, observable, and replicable. The ultimate goal in conducting primary research is to learn about something new that can be confirmed by others and to eliminate our own biases in the process.

ESSAY OVERVIEW AND STUDENT

Examples The essay begins by providing an overview of ethical considerations when conducting primary research, and then covers the stages that you will go through in your primary research: planning, collecting, analyzing, and writing. After the four stages comes an introduction to three common ways of conducting primary research in first year writing classes:

- Observations. Observing and measuring the world around you, including observations of people and other measurable events.
- Interviews. Asking participants questions in a one-on-one or small group setting.
- Surveys. Asking participants about their opinions and behaviors through a short questionnaire.

In addition, we will be examining two student projects that used substantial portions of primary

research: Derek Laan, a nutrition major at Purdue University, wanted to learn more about student eating habits on campus. His primary research included observations of the campus food courts, student behavior while in the food courts, and a survey of students' daily food intake. His secondary research included looking at national student eating trends on college campuses, information from the United States Food and Drug Administration, and books on healthy eating. Jared Schwab, an agricultural and biological engineering major at Purdue, was interested in learning more about how writing and communication took place in his field. His primary research included interviewing a professional engineer and a student who was a senior majoring in engineering. His secondary research included examining journals, books, professional organizations, and writing guides within the field of engineering.

ETHICS OF PRIMARY RESEARCH

Both projects listed above included primary research on human participants; therefore, Derek and Jared both had to consider research ethics throughout their primary research process. As Earl Babbie writes in *The Practice of Social Research*, throughout the early and middle parts of the twentieth century researchers took advantage of participants and treated them unethically.

During World War II, Nazi doctors performed heinous experiments on prisoners without their consent, while in the U.S., a number of medical and psychological experiments on caused patients undue mental and physical trauma and, in some cases, death. Because of these and other similar events, many nations have established ethical laws and guidelines for researchers who work with human participants. In the United States, the guidelines for the ethical treatment of human research participants are described in *The Belmont Report*, released in 1979. Today, universities have Institutional Review Boards (or IRBs) that oversee research. Students conducting research as part of a class may not need permission from the university's IRB, although they still need to ensure that they follow ethical guidelines in research. The following provides a brief overview of ethical considerations:

VOLUNTARY PARTICIPATION

The Belmont Report suggests that, in most cases, you need to get permission from people before you involve them in any primary research you are conducting. If you are doing a survey or interview, your participants must first agree to fill out your survey or to be interviewed. Consent for observations can be more complicated, and is discussed later in the essay.

CONFIDENTIALITY AND ANONYMITY

Your participants may reveal embarrassing or potentially damaging information such as racist comments or unconventional behavior. In these cases, you should keep your participants' identities anonymous when writing your results. An easy way to do this is to create a "pseudonym" (or false name) for them so that their identity is protected.

RESEARCHER BIAS

There is little point in collecting data and learning about something if you already think you know the answer! Bias might be present in the way you ask questions, the way you take notes, or the conclusions you draw from the data you collect.

PLANNING YOUR PRIMARY RESEARCH PROJECT

The primary research process is quite similar to the writing process, and you can draw upon your

knowledge of the writing process to understand the steps involved in a primary research project. Just like in the writing process, a successful primary research project begins with careful planning and background research. This section first describes how to create a research timeline to help plan your research. It then walks you through the planning stages by examining when primary research is useful or appropriate for your first year composition course, narrowing down a topic, and developing research questions.

THE RESEARCH TIMELINE

When you begin to conduct any kind of primary research, creating a timeline will help keep you on task. Because students conducting primary research usually focus on the collection of data itself, they often overlook the equally important areas of planning (invention), analyzing data, and writing. To help manage your time, you should create a research timeline, such as the sample timeline presented here.

WHEN PRIMARY RESEARCH IS USEFUL OR APPROPRIATE IN

Evaluating Scientific Research:

Separating Fact from Fiction, Fred Leavitt explains that primary research is useful for questions that can be answered through asking others and direct observation. For first year writing courses, primary research is particularly useful when you want to learn about a problem that does not have a wealth of published information.

This may be because the problem is a recent event or it is something not commonly studied. For example, if you are writing a paper on a new political issue, such as changes in tax laws or healthcare, you might not be able to find a wealth of peer-reviewed research because the issue is only several weeks old. You may find it necessary to collect some of your own data on the issue to supplement what you found at the library.

Primary research is also useful when you are studying a local problem or learning how a larger issue plays out at the local level. Although you might be able to find information on national statistics for healthy eating, whether or not those statistics are representative of your college campus is something that you can learn through primary research.

DEVELOPING RESEARCH

Questions or Hypotheses As John Stuart Mill describes, primary research can use both inductive and deductive approaches, and the type approach is usually based on the field of inquiry.

Some fields use deductive reasoning, where researchers start with a hypothesis or general conclusion and then collect specific data to support or refute their hypothesis.

Other fields use inductive reasoning, where researchers start with a question and collect information that eventually leads to a conclusion. Once you have spent some time reviewing the secondary research on your topic, you are ready to write a primary research question or hypothesis. A research question or hypothesis should be something that is specific, narrow, and discoverable through primary research methods. Just like a thesis statement for a paper, if your research question or hypothesis is too broad, your research will be unfocused and your data will be difficult to analyze and write about. Here is a set of sample research questions:

OBSERVATIONS

Observations have led to some of the most important scientific discoveries in human history. Charles Darwin used observations of the animal and marine life at the Galapagos Islands to help him formulate his theory of evolution that he describes in *On the Origin of Species*. Today, social scientists, natural scientists, engineers, computer scientists, educational researchers, and many others use observations as a primary research method. Observations can be conducted on nearly any subject matter, and the kinds of observations you will do depend on your research question. You might observe traffic or parking patterns on campus to get a sense of what improvements could be made. You might observe clouds, plants, or other natural phenomena. If you choose to observe people, you will have several additional considerations including the manner in which you will observe them and gain their consent. If you are observing people, you can choose between two common ways to observe: participant observation and unobtrusive observation. Participant observation is a common method within ethnographic research in sociology and anthropology. In this kind of observation, a researcher may interact with participants and become part of their community.

Margaret Mead, a famous anthropologist, spent extended periods of time living in, and interacting with, communities that she studied. Conversely, in unobtrusive observation, you do not interact with participants but rather simply record their behavior. Although in most circumstances people must volunteer to be participants in research, in some cases it is acceptable to not let participants know you are observing them. In places that people perceive as public, such as a campus food court or a shopping mall, people do not expect privacy, and so it is generally acceptable to observe without participant consent. In places that people perceive as private, which can include a church,

ELIMINATING BIAS IN YOUR OBSERVATION NOTES

The ethical concern of being unbiased is important in recording your observations. You need to be aware of the difference between an observation (recording exactly what you see) and an interpretation (making assumptions and judgments about what you see). When you observe, you should focus first on only the events that are directly observable. Consider the following two example entries in an observation log:

1. The student sitting in the dining hall enjoys his greasy, oilsoaked pizza. He is clearly oblivious of the calorie content and damage it may do to his body.
2. The student sits in the dining hall. As he eats his piece of pizza, which drips oil, he says to a friend, "This pizza is good."

SURVEYS AND INTERVIEWS:

Question Creation Sometimes it is very difficult for a researcher to gain all of the necessary information through observations alone. Along with his observations of the dining halls, Derek wanted to know what students ate in a typical day, and so he used a survey to have them keep track of their eating habits.

Likewise, Jared wanted to learn about writing and communication in engineering and decided to draw upon expert knowledge by asking experienced individuals within the field. Interviews and surveys are two ways that you can gather information about people's beliefs or behaviors. With these methods, the information you collect is not first-hand (like an observation) but rather "self-reported" data, or data collected in an indirect manner.

William Shadish, Thomas Cook, and Donald Campbell argued that people are inherently biased about how they see the world and may report their own actions in a more favorable way than they may actually behave. Despite the issues in self-reported data, surveys and interviews are an excellent way to gather data for your primary research project.

Survey or Interview? How do you choose between conducting a survey or an interview? It depends on what kind of information you are looking for.

You should use surveys if you want to learn about a general trend in people's opinions, experiences, and behavior. Surveys are particularly useful to find small amounts of information from a wider selection of people in the hopes of making a general claim. Interviews are best used when you want to learn detailed information from a few specific people. Interviews are also particularly useful if you want to interview experts about their opinions, as Jared did. In sum, use interviews to gain details from a few people, and surveys to learn general patterns from many people.

WRITING GOOD QUESTIONS

One of the greatest challenges in conducting surveys and interviews is writing good questions. As a researcher, you are always trying to eliminate bias, and the questions you ask need to be unbiased and clear. Here are some suggestions on writing good questions:

ASK ABOUT ONE THING AT A TIME

A poorly written question can contain multiple questions, which can confuse participants or lead them to answer only part of the question you are asking. This is called a "double-barreled question" in journalism. The following questions are taken from Jared's research: Poor question: What kinds of problems are being faced in the field today and where do you see the search for solutions to these problems going?

Revised question #1 : What kinds of problems are being faced in the field today?

Revised question #2: Where do you see the search for solutions to these problems going?

UNDERSTAND WHEN TO USE OPEN AND CLOSED QUESTIONS

Closed questions, or questions that have yes/no or other limited responses, should be used in surveys. However, avoid these kinds of questions in interviews because they discourage the interviewee from going into depth.

The question sample above, "Do you believe the economy currently is in a crisis?" could be answered with a simple yes or no, which could keep a participant from talking more about the issue. The "why or why not?" portion of the question asks the participant to elaborate. On a survey, the question "Do you believe the economy currently is in a crisis?"

is a useful question because you can easily count the number of yes and no answers and make a general claim about participant responses.

INTERVIEWS

Interviews, or question and answer sessions with one or more people, are an excellent way to learn in-depth information from a person for your primary research project. This section presents information on how to conduct a successful interview, including choosing the right person, ways of interviewing, recording your interview, interview locations, and transcribing your interview.

Choosing the Right Person One of the keys to a successful interview is choosing the right person to interview. Think about whom you would like to interview and whom you might know. Do not be afraid to ask people you do not know for interviews. When asking, simply tell them what the interview will be about, what the interview is for, and how much time it will take. Jared used his Purdue University connection to locate both of the individuals that he ended up interviewing—an advanced Purdue student and a Purdue alum working in an Engineering firm.

FACE-TO-FACE AND VIRTUAL INTERVIEWS

When interviewing, you have a choice of conducting a traditional, face-to-face interview or an interview using technology over the Internet. Face-to-face interviews have the strength that you can ask follow-up questions and use non-verbal communication to your advantage. Individuals are able to say much more in a face-to-face interview than in an email, so you will get more information from a face-to-face interview. However, the Internet provides a host of new possibilities when it comes to interviewing people at a distance. You may choose to do an email interview, where you send questions and ask the person to respond.

You may also choose to use a video or audio conferencing program to talk with the person virtually. If you are choosing any Internet-based option, make sure you have a way of recording the interview. You may also use a chat or instant messaging program to interview your participant—the benefit of this is that you can ask follow-up questions during the interview and the interview is already transcribed for you. Because one of his interviewees lived several hours away, Jared chose to interview the Purdue student face-to-face and the Purdue alum via email.

Transcribing Your Interview Once your interview is over, you will need to transcribe your interview to prepare it for analysis. The term transcribing means creating a written record that is exactly what was said—i.e. typing up your interviews. If you have conducted an email or chat interview, you already have a transcription and can move on to your analysis stage.

ANALYZING AND WRITING ABOUT PRIMARY

Research Once you collect primary research data, you will need to analyze what you have found so that you can write about it. The purpose of analyzing your data is to look at what you collected (survey responses, interview answers to questions, observations) and to create a cohesive, systematic interpretation to help answer your research question or examine the validity of your hypothesis. When you are analyzing and presenting your findings, remember to work to eliminate bias by being truthful and as accurate as possible about what you found, even if it differs from what you expected to find. You should see your data as sources of information, just like sources you find in the library, and you should work to represent them accurately. The following are suggestions for analyzing different types of data.

OBSERVATIONS

If you've counted anything you were observing, you can simply add up what you counted and report the results. If you've collected descriptions using a double-entry notebook, you might work to write thick descriptions of what you observed into your writing. This could include descriptions of the scene, behaviors you observed, and your overall conclusions about events. Be sure that your readers are clear on what were your actual observations versus your thoughts or interpretations of those observations.

INTERVIEWS

If you've interviewed one or two people, then you can use your summary, paraphrasing, and quotation skills to help you accurately describe what was said in the interview. Just like in secondary research when working with sources, you should introduce your interviewees and choose clear and relevant quotes from the interviews to use in your writing. An easy way to find the important information in an interview is to print out your transcription and take a highlighter and mark the important parts that you might use in your paper. If you have conducted a large number of interviews, it will be helpful for you to create a spreadsheet of responses to each question and compare the responses, choosing representative answers for each area you want to describe.

SURVEYS

Surveys can contain quantitative (numerical) and qualitative (written answers/descriptions) data. Quantitative data can be analyzed using a spreadsheet program like Microsoft Excel to calculate the mean (average) answer or to calculate the percentage of people who responded in a certain way. You can display this information in a chart or a graph and also describe it in writing in your paper. If you have qualitative responses, you might choose to group them into categories and/or you may choose to quote several representative responses.

Experimental

Experimental psychology can be defined as the scientific and empirical approach to the study of the mind. The experimental approach means that tests are administered to participants, with both control and experimental conditions.

This means that a group of participants are exposed to a stimulus (or stimuli), and their behavior in response is recorded. This behavior is compared to some kind of control condition, which could be either a neutral stimulus, the absence of a stimulus, or against a control group.

Experimental psychology is concerned with testing theories of human thoughts, feelings, actions, and beyond – any aspect of being human that involves the mind. This is a broad category that features many branches within it (e.g. behavioral psychology, cognitive psychology). Below, we will go through a brief history of experimental psychology, the aspects that characterize it, and outline research that has gone on to shape this field.

A Brief History of Experimental Psychology

As with anything, and perhaps particularly with scientific ideas, it's difficult to pinpoint the exact moment in which a thought or approach was conceived. One of the best candidates with which to credit the emergence of experimental psychology with is Gustav Fechner who came to prominence in the 1830's. After completing his Ph.D in biology at the University of Leipzig [1], and continuing his work as a professor, he made a significant breakthrough in the conception of mental states.

As Schultz and Schultz recount [2]: "An increase in the intensity of a stimulus, Fechner argued, does not produce a one-to-one increase in the intensity of the sensation ... For example, adding the sound of one bell to that of an already ringing bell produces a greater increase in sensation than adding one bell to 10 others already ringing. Therefore, the effects of stimulus intensities are not absolute but are relative to the amount of sensation that already exists."

The next scientist to advance the field of experimental psychology was influenced directly by reading Fechner's book "Elements of Psychophysics". Hermann Ebbinghaus, also a German scientist, carried out the first properly formalized research into memory and forgetting, by using long lists of (mostly) nonsense syllables (such as: "VAW", "TEL", "BOC") and recording how long it took for people to forget them.

Experiments using this list, concerning learning and memory, would take up much of Ebbinghaus' career, and help cement experimental psychology as a science. There are many other scientists' whose contributions helped pave the way for the direction, approach, and success of experimental psychology (Hermann von Helmholtz, Ernst Weber, and Mary Whiton Calkins, to name just a few), yet their work is beyond the scope of this post.

Defining any scientific field is in itself no exact science – there are inevitably aspects that will be missed. However, experimental psychology features at least three central components that define it: empiricism, falsifiability, and determinism. These features are central to experimental psychology but also many other fields within science.

Empiricism refers to the collection of data that can support or refute a theory. In opposition to purely theoretical reasoning, empiricism is concerned with observations that can be tested. It is based on the notion that all knowledge stems from sensory experience – that observations can be perceived and data surrounding them can be collected to form experiments.

Falsifiability is a foundational aspect of all contemporary scientific work. Karl Popper, a 20th century philosopher, formalized this concept – that for any theory to be scientific there must be a way to falsify it.

CLASSIC STUDIES IN EXPERIMENTAL PSYCHOLOGY

Little Albert

One of the most notorious studies within experimental psychology was also one of the foundational pieces of research for behaviorism. Popularly known as the study of "Little Albert", this experiment, carried out in 1920, focused on whether a baby could be made to fear a stimulus through conditioning (conditioning refers to the association of a response to a stimulus) [3].

The psychologist, John B. Watson, devised an experiment in which a baby was exposed to an unconditioned stimulus (in this case, a white rat) at the same time as a fear-inducing stimulus (the loud, sudden sound of a hammer hitting a metal bar). The repetition of this loud noise paired with the appearance of the white rat eventually led to the white rat becoming a conditioned stimulus – inducing the fear response even without the sound of the hammer.

ASCH'S CONFORMITY EXPERIMENT

Three decades following Watson's infamous experiment, beliefs were studied rather than behavior. Research carried out by Solomon Asch in 1951 showed how group pressure could make people say what they didn't believe.

The goal was to examine how social pressures "induce individuals to resist or to yield to group pressures when the latter are perceived to be contrary to fact" [6]. Participant's were introduced to a group of seven people in which, unbeknownst to them, all other individuals were actors hired by

Asch. The task was introduced as a perceptual test, in which the length of lines was to be compared.

THE FUTURE OF EXPERIMENTAL PSYCHOLOGY

The majority of this article has been concerned with what experimental psychology is, where it comes from, and what it has achieved so far. An inevitable follow-up question to this is – where is it going?

While predictions are difficult to make, there are at least indications. The best place to look is to experts in the field. Schultz and Schultz refer to modern psychology “as the science of behavior and mental processes instead of only behavior, a science seeking to explain overt behavior and its relationship to mental processes.” [2].

The Association for Psychological Science (APS) asked for forecasts from several prominent psychology researchers (original article available here), and received some of the following responses.

QUASI-EXPERIMENTAL RESEARCH

The prefix quasi means “resembling.” Thus quasi-experimental research is research that resembles experimental research but is not true experimental research. Although the independent variable is manipulated, participants are not randomly assigned to conditions or orders of conditions (Cook & Campbell, 1979). Because the independent variable is manipulated before the dependent variable is measured, quasi-experimental research eliminates the directionality problem. But because participants are not randomly assigned—making it likely that there are other differences between conditions—quasi-experimental research does not eliminate the problem of confounding variables. In terms of internal validity, therefore, quasi-experiments are generally somewhere between correlational studies and true experiments.

Quasi-experiments are most likely to be conducted in field settings in which random assignment is difficult or impossible. They are often conducted to evaluate the effectiveness of a treatment—perhaps a type of psychotherapy or an educational intervention. There are many different kinds of quasi-experiments, but we will discuss just a few of the most common ones here.

NONEQUIVALENT GROUPS DESIGN

Recall that when participants in a between-subjects experiment are randomly assigned to conditions, the resulting groups are likely to be quite similar. In fact, researchers consider them to be equivalent. When participants are not randomly assigned to conditions, however, the resulting groups are likely to be dissimilar in some ways. For this reason, researchers consider them to be nonequivalent.

Imagine, for example, a researcher who wants to evaluate a new method of teaching fractions to third graders. One way would be to conduct a study with a treatment group consisting of one class of third-grade students and a control group consisting of another class of third-grade students.

This design would be a nonequivalent groups design because the students are not randomly assigned to classes by the researcher, which means there could be important differences between them. For example, the parents of higher achieving or more motivated students might have been more likely to request that their children be assigned to Ms. Williams’s class. Or the principal might have assigned the “troublemakers” to Mr. Jones’s class because he is a stronger disciplinarian. Of

course, the teachers' styles, and even the classroom environments, might be very different and might cause different levels of achievement or motivation among the students. If at the end of the study there was a difference in the two classes' knowledge of fractions, it might have been caused by the difference between the teaching methods—but it might have been caused by any of these confounding variables.

Of course, researchers using a nonequivalent groups design can take steps to ensure that their groups are as similar as possible. In the present example, the researcher could try to select two classes at the same school, where the students in the two classes have similar scores on a standardized math test and the teachers are the same sex, are close in age, and have similar teaching styles. Taking such steps would increase the internal validity of the study because it would eliminate some of the most important confounding variables. But without true random assignment of the students to conditions, there remains the possibility of other important confounding variables that the researcher was not able to control.

If the average posttest score is better than the average pretest score, then it makes sense to conclude that the treatment might be responsible for the improvement. Unfortunately, one often cannot conclude this with a high degree of certainty because there may be other explanations for why the posttest scores are better. One category of alternative explanations goes under the name of **history**. Other things might have happened between the pretest and the posttest. Perhaps an antidrug program aired on television and many of the students watched it, or perhaps a celebrity died of a drug overdose and many of the students heard about it. Another category of alternative explanations goes under the name of **maturation**. Participants might have changed between the pretest and the posttest in ways that they were going to anyway because they are growing and learning. If it were a yearlong program, participants might become less impulsive or better reasoners and this might be responsible for the change.

Natural Experiment

Natural experiments are conducted in the everyday (i.e. real life) environment of the participants, but here the experimenter has no control over the independent variable as it occurs naturally in real life. For example, Hodges and Tizard's attachment research (1989) compared the long term development of children who have been adopted, fostered or returned to their mothers with a control group of children who had spent all their lives in their biological families.

- **Strength:** behavior in a natural experiment is more likely to reflect real life because of its natural setting, i.e. very high ecological validity.
- **Strength:** There is less likelihood of demand characteristics affecting the results, as participants may not know they are being studied.
- **Strength:** Can be used in situations in which it would be ethically unacceptable to manipulate the independent variable, e.g. researching stress.
- **Limitation:** They may be more expensive and time consuming than lab experiments.
- **Limitation:** There is no control over extraneous variables that might bias the results. This makes it difficult for another researcher to replicate the study in exactly the same way.

FIELD STUDY

A field study is a general method for collecting data about users, user needs, and product

requirements that involves observation and interviewing. Data are collected about task flows, inefficiencies, and the organizational and physical environments of users.

Investigators in field studies observe users as they work, taking notes on particular activities and often asking questions of the users. Observation may be either direct, where the investigator is actually present during the task, or indirect, where the task is viewed by some other means like a video recorder set up in an office. The method is useful early in product development to gather user requirements. It is also useful for studying currently executed tasks and processes.

THE FOCUS OF CROSS-CULTURAL PSYCHOLOGY

Cross-cultural psychology is a branch of psychology that looks at how cultural factors influence human behavior. While many aspects of human thought and behavior are universal, cultural differences can lead to often surprising differences in how people think, feel, and act.

Some cultures, for example, might stress individualism and the importance of personal autonomy. Other cultures, however, may place a higher value on collectivism and cooperation among members of the group. Such differences can play a powerful role in many aspects of life.

Cross-cultural psychology is also emerging as an increasingly important topic as researchers strive to understand both the differences and similarities among people of various cultures throughout the world. The International Association of Cross- Cultural Psychology (IACCP) was established in 1972, and this branch of psychology has continued to grow and develop since that time.¹ Today, increasing numbers of psychologists investigate how behavior differs among various cultures throughout the world.

WHY CROSS-CULTURAL PSYCHOLOGY IS IMPORTANT

After prioritizing European and North American research for many years, Western researchers began to question whether many of the observations and ideas that were once believed to be universal might apply to cultures outside of these areas. Could their findings and assumptions about human psychology be biased based on the sample from which their observations were drawn?

Cross-cultural psychologists work to rectify many of the biases that may exist in the current research² and determine if the phenomena that appear in European and North American cultures also appear in other parts of the world.

For example, consider how something such as social cognition might vary from an individualist culture such as the United States versus a collectivist culture such as China. Do people in China rely on the same social cues as people in the U.S. do? What cultural differences might influence how people perceive each other? These are just some of the questions that a cross-cultural psychologist might explore.

Many cross-cultural psychologists choose to focus on one of two approaches:

- **The etic approach** studies culture through an "outsider" perspective, applying one "universal" set of concepts and measurements to all cultures.
- **The emic approach** studies culture using an "insider" perspective, analyzing concepts within the specific context of the observed culture.

Some cross-cultural psychologists take a combined emic-etic approach. Meanwhile, some cross-cultural psychologists also study something known as ethnocentrism.

Ethnocentrism refers to a tendency to use your own culture as the standard by which to judge and evaluate other cultures.⁶ In other words, taking an ethnocentric point of view means using your understanding of your own culture to gauge what is "normal." This can lead to biases and a tendency to view cultural differences as abnormal or in a negative light. It can also make it difficult to see how your own cultural background influences your behaviors.

Psychologists are also concerned with how ethnocentrism can influence the research process. For example, a study might be criticized for having an ethnocentric bias.

Major Topics in Cross-Cultural Psychology

- Emotions
- Language acquisition
- Child development
- Personality
- Social behavior
- Family and social relationships

CROSS-CULTURAL PSYCHOLOGY DIFFERS FROM OTHER BRANCHES OF PSYCHOLOGY

- Many other branches of psychology focus on how parents, friends, and other people impact human behavior, but most do not take into account the powerful impact that culture may have on individual human actions.
- Cross-cultural psychology, on the other hand, is focused on studying human behavior in a way that takes the effects of culture into account.
- According to Walter J. Lonner, writing for *Eye on Psi Chi*, cross-cultural psychology can be thought of as a type of research methodology rather than an entirely separate field within psychology.

Phenomenology

Phenomenology is commonly understood in either of two ways: as a disciplinary field in philosophy, or as a movement in the history of philosophy.

The discipline of phenomenology may be defined initially as the study of structures of experience, or consciousness. Literally, phenomenology is the study of "phenomena": appearances of things, or things as they appear in our experience, or the ways we experience things, thus the meanings things have in our experience. Phenomenology studies conscious experience as experienced from the subjective or first person point of view. This field of philosophy is then to be distinguished from, and related to, the other main fields of philosophy: ontology (the study of being or what is), epistemology (the study of knowledge), logic (the study of valid reasoning), ethics (the study of right and wrong action), etc.

The historical movement of phenomenology is the philosophical tradition launched in the first half of the 20th century by Edmund Husserl, Martin Heidegger, Maurice Merleau-Ponty, Jean-Paul Sartre, et al. In that movement, the discipline of phenomenology was prized as the proper foundation of all philosophy—as opposed, say, to ethics or metaphysics or epistemology. The methods and

characterization of the discipline were widely debated by Husserl and his successors, and these debates continue to the present day. (The definition of phenomenology offered above will thus be debatable, for example, by Heideggerians, but it remains the starting point in characterizing the discipline.)

In recent philosophy of mind, the term “phenomenology” is often restricted to the characterization of sensory qualities of seeing, hearing, etc.: what it is like to have sensations of various kinds. However, our experience is normally much richer in content than mere sensation. Accordingly, in the phenomenological tradition, phenomenology is given a much wider range, addressing the meaning things have in our experience, notably, the significance of objects, events, tools, the flow of time, the self, and others, as these things arise and are experienced in our “life-world”.

Phenomenology as a discipline has been central to the tradition of continental European philosophy throughout the 20th century, while philosophy of mind has evolved in the Austro-Anglo-American tradition of analytic philosophy that developed throughout the 20th century. Yet the fundamental character of our mental activity is pursued in overlapping ways within these two traditions. Accordingly, the perspective on phenomenology drawn in this article will accommodate both traditions. The main concern here will be to characterize the discipline of phenomenology, in a contemporary purview, while also highlighting the historical tradition that brought the discipline into its own.

THE DISCIPLINE OF PHENOMENOLOGY

The discipline of phenomenology is defined by its domain of study, its methods, and its main results. Phenomenology studies structures of conscious experience as experienced from the first-person point of view, along with relevant conditions of experience. The central structure of an experience is its intentionality, the way it is directed through its content or meaning toward a certain object in the world.

We all experience various types of experience including perception, imagination, thought, emotion, desire, volition, and action. Thus, the domain of phenomenology is the range of experiences including these types (among others). Experience includes not only relatively passive experience as in vision or hearing, but also active experience as in walking or hammering a nail or kicking a ball. (The range will be specific to each species of being that enjoys consciousness; our focus is on our own, human, experience. Not all conscious beings will, or will be able to, practice phenomenology, as we do.)

Conscious experiences have a unique feature: we experience them, we live through them or perform them. Other things in the world we may observe and engage. But we do not experience them, in the sense of living through or performing them. This experiential or first- person feature—that of being experienced—is an essential part of the nature or structure of conscious experience: as we say, “I see / think / desire / do ...” This feature is both a phenomenological and an ontological feature of each experience: it is part of what it is for the experience to be experienced (phenomenological) and part of what it is for the experience to be (ontological).

FROM PHENOMENA TO PHENOMENOLOGY

The Oxford English Dictionary presents the following definition: “Phenomenology. a. The science of phenomena as distinct from being (ontology). b. That division of any science which describes and classifies its phenomena. From the Greek *phainomenon*, appearance.” In philosophy, the term is used in the first sense, amid debates of theory and methodology. In physics and philosophy of

science, the term is used in the second sense, albeit only occasionally.

In its root meaning, then, phenomenology is the study of phenomena: literally, appearances as opposed to reality. This ancient distinction launched philosophy as we emerged from Plato's cave. Yet the discipline of phenomenology did not blossom until the 20th century and remains poorly understood in many circles of contemporary philosophy. What is that discipline? How did philosophy move from a root concept of phenomena to the discipline of phenomenology?

Originally, in the 18th century, "phenomenology" meant the theory of appearances fundamental to empirical knowledge, especially sensory appearances. The Latin term "Phenomenologia" was introduced by Christoph Friedrich Oetinger in 1736. Subsequently, the German term "Phänomenologia" was used by Johann Heinrich Lambert, a follower of Christian Wolff. Immanuel Kant used the term occasionally in various writings, as did Johann Gottlieb Fichte. In 1807, G. W. F. Hegel wrote a book titled *Phänomenologie des Geistes* (usually translated as *Phenomenology of Spirit*). By 1889 Franz Brentano used the term to characterize what he called "descriptive psychology". From there Edmund Husserl took up the term for his new science of consciousness, and the rest is history.

THE HISTORY AND VARIETIES OF PHENOMENOLOGY

Phenomenology came into its own with Husserl, much as epistemology came into its own with Descartes, and ontology or metaphysics came into its own with Aristotle on the heels of Plato. Yet phenomenology has been practiced, with or without the name, for many centuries. When Hindu and Buddhist philosophers reflected on states of consciousness achieved in a variety of meditative states, they were practicing phenomenology. When Descartes, Hume, and Kant characterized states of perception, thought, and imagination, they were practicing phenomenology. When Brentano classified varieties of mental phenomena (defined by the directedness of consciousness), he was practicing phenomenology.

When William James appraised kinds of mental activity in the stream of consciousness (including their embodiment and their dependence on habit), he too was practicing phenomenology. And when recent analytic philosophers of mind have addressed issues of consciousness and intentionality, they have often been practicing phenomenology. Still, the discipline of phenomenology, its roots tracing back through the centuries, came to full flower in Husserl.

Husserl's work was followed by a flurry of phenomenological writing in the first half of the 20th century. The diversity of traditional phenomenology is apparent in the *Encyclopedia of Phenomenology* (Kluwer Academic Publishers, 1997, Dordrecht and Boston), which features separate articles on some seven types of phenomenology.

1. Transcendental constitutive phenomenology studies how objects are constituted in pure or transcendental consciousness, setting aside questions of any relation to the natural world around us.
2. Naturalistic constitutive phenomenology studies how consciousness constitutes or takes things in the world of nature, assuming with the natural attitude that consciousness is part of nature.
3. Existential phenomenology studies concrete human existence, including our experience of free choice or action in concrete situations.
4. Generative historicist phenomenology studies how meaning, as found in our experience, is generated in historical processes of collective experience over time.

5. Genetic phenomenology studies the genesis of meanings of things within one's own stream of experience.
6. Hermeneutical phenomenology studies interpretive structures of experience, how we understand and engage things around us in our human world, including ourselves and others.
7. Realistic phenomenology studies the structure of consciousness and intentionality, assuming it occurs in a real world that is largely external to consciousness and not somehow brought into being by consciousness.

Phenomenology and Ontology, Epistemology, Logic, Ethics

The discipline of phenomenology forms one basic field in philosophy among others. How is phenomenology distinguished from, and related to, other fields in philosophy?

Traditionally, philosophy includes at least four core fields or disciplines: ontology, epistemology, ethics, logic. Suppose phenomenology joins that list. Consider then these elementary definitions of field:

- Ontology is the study of beings or their being—what is.
- Epistemology is the study of knowledge—how we know.
- Logic is the study of valid reasoning—how to reason.
- Ethics is the study of right and wrong—how we should act.
- Phenomenology is the study of our experience—how we experience.

The domains of study in these five fields are clearly different, and they seem to call for different methods of study.

Philosophers have sometimes argued that one of these fields is “first philosophy”, the most fundamental discipline, on which all philosophy or all knowledge or wisdom rests. Historically (it may be argued), Socrates and Plato put ethics first, then Aristotle put metaphysics or ontology first, then Descartes put epistemology first, then Russell put logic first, and then Husserl (in his later transcendental phase) put phenomenology first.

Consider epistemology. As we saw, phenomenology helps to define the phenomena on which knowledge claims rest, according to modern epistemology. On the other hand, phenomenology itself claims to achieve knowledge about the nature of consciousness, a distinctive kind of first-person knowledge, through a form of intuition.

Consider logic. As we saw, logical theory of meaning led Husserl into the theory of intentionality, the heart of phenomenology. On one account, phenomenology explicates the intentional or semantic force of ideal meanings, and propositional meanings are central to logical theory. But logical structure is expressed in language, either ordinary language or symbolic languages like those of predicate logic or mathematics or computer systems. It remains an important issue of debate where and whether language shapes specific forms of experience (thought, perception, emotion) and their content or meaning. So there is an important (if disputed) relation between phenomenology and logico-linguistic theory, especially philosophical logic and philosophy of language (as opposed to mathematical logic per se).

Consider ontology. Phenomenology studies (among other things) the nature of consciousness, which is a central issue in metaphysics or ontology, and one that leads into the traditional mind-body problem. Husserlian methodology would bracket the question of the existence of the surrounding

world, thereby separating phenomenology from the ontology of the world. Yet Husserl's phenomenology presupposes theory about species and individuals (universals and particulars), relations of part and whole, and ideal meanings—all parts of ontology.

Now consider ethics. Phenomenology might play a role in ethics by offering analyses of the structure of will, valuing, happiness, and care for others (in empathy and sympathy). Historically, though, ethics has been on the horizon of phenomenology. Husserl largely avoided ethics in his major works, though he featured the role of practical concerns in the structure of the life-world or of Geist (spirit, or culture, as in *Zeitgeist*), and he once delivered a course of lectures giving ethics (like logic) a basic place in philosophy, indicating the importance of the phenomenology of sympathy in grounding ethics. In *Being and Time* Heidegger claimed not to pursue ethics while discussing phenomena ranging from care, conscience, and guilt to “fallenness” and “authenticity” (all phenomena with theological echoes). In *Being and Nothingness* Sartre analyzed with subtlety the logical problem of “bad faith”, yet he developed an ontology of value as produced by willing in good faith (which sounds like a revised Kantian foundation for morality). Beauvoir sketched an existentialist ethics, and Sartre left unpublished notebooks on ethics. However, an explicitly phenomenological approach to ethics emerged in the works of Emmanuel Levinas, a Lithuanian phenomenologist who heard Husserl and Heidegger in Freiburg before moving to Paris. In *Totality and Infinity* (1961), modifying themes drawn from Husserl and Heidegger, Levinas focused on the significance of the “face” of the other, explicitly developing grounds for ethics in this range of phenomenology, writing an impression

PHENOMENOLOGY AND PHILOSOPHY OF MIND

It ought to be obvious that phenomenology has a lot to say in the area called philosophy of mind. Yet the traditions of phenomenology and analytic philosophy of mind have not been closely joined, despite overlapping areas of interest. So it is appropriate to close this survey of phenomenology by addressing philosophy of mind, one of the most vigorously debated areas in recent philosophy.

The tradition of analytic philosophy began, early in the 20th century, with analyses of language, notably in the works of Gottlob Frege, Bertrand Russell, and Ludwig Wittgenstein. Then in *The Concept of Mind* (1949) Gilbert Ryle developed a series of analyses of language about different mental states, including sensation, belief, and will. Though Ryle is commonly deemed a philosopher of ordinary language, Ryle himself said *The Concept of Mind* could be called phenomenology.

In effect, Ryle analyzed our phenomenological understanding of mental states as reflected in ordinary language about the mind. From this linguistic phenomenology Ryle argued that Cartesian mind-body dualism involves a category mistake (the logic or grammar of mental verbs—“believe”, “see”, etc.—does not mean that we ascribe belief, sensation, etc., to “the ghost in the machine”). With Ryle's rejection of mind-body dualism, the mind-body problem was re-awakened: what is the ontology of mind vis-à-vis body, and how are mind and body related?

René Descartes, in his epoch-making *Meditations on First Philosophy* (1641), had argued that minds and bodies are two distinct kinds of being or substance with two distinct kinds of attributes or modes: bodies are characterized by spatiotemporal physical properties, while minds are characterized by properties of thinking (including seeing, feeling, etc.).

Centuries later, phenomenology would find, with Brentano and Husserl, that mental acts are characterized by consciousness and intentionality, while natural science would find that physical

systems are characterized by mass and force, ultimately by gravitational, electromagnetic, and quantum fields. Where do we find consciousness and intentionality in the quantum-electromagnetic-gravitational field that, by hypothesis, orders everything in the natural world in which we humans and our minds exist? That is the mind-body problem today. In short, phenomenology by any other name lies at the heart of the contemporary mind-body problem.

GROUNDED THEORY OF PSYCHOLOGY

Grounded theory is a well-known methodology employed in many research studies. Qualitative and quantitative data generation techniques can be used in a grounded theory study. Grounded theory sets out to discover or construct theory from data, systematically obtained and analysed using comparative analysis. While grounded theory is inherently flexible, it is a complex methodology. Thus, novice researchers strive to understand the discourse and the practical application of grounded theory concepts and processes.

Glaser and Strauss are recognised as the founders of grounded theory. Strauss was conversant in symbolic interactionism and Glaser in descriptive statistics.⁸⁻¹⁰ Glaser and Strauss originally worked together in a study examining the experience of terminally ill patients who had differing knowledge of their health status. Some of these suspected they were dying and tried to confirm or disconfirm their suspicions. Others tried to understand by interpreting treatment by care providers and family members. Glaser and Strauss examined how the patients dealt with the knowledge they were dying and the reactions of healthcare staff caring for these patients. Throughout this collaboration, Glaser and Strauss questioned the appropriateness of using a scientific method of verification for this study. During this investigation, they developed the constant comparative method, a key element of grounded theory, while generating a theory of dying first described in *Awareness of Dying* (1965). The constant comparative method is deemed an original way of organising and analysing qualitative data.

Glaser and Strauss subsequently went on to write *The Discovery of Grounded Theory: Strategy for Qualitative Research* (1967). This seminal work explained how theory could be generated from data inductively. This process challenged the traditional method of testing or refining theory through deductive testing. Grounded theory provided an outlook that questioned the view of the time that quantitative methodology is the only valid, unbiased way to determine truths about the world. Glaser and Strauss challenged the belief that qualitative research lacked rigour and detailed the method of comparative analysis that enables the generation of theory. After publishing *The Discovery of Grounded Theory*, Strauss and Glaser went on to write independently, expressing divergent viewpoints in the application of grounded theory methods.

OBJECTIVE:

The aim of this article is to provide a contemporary research framework suitable to inform a grounded theory study.

RESULT:

This article provides an overview of grounded theory illustrated through a graphic representation of the processes and methods employed in conducting research using this methodology. The framework is presented as a diagrammatic representation of a research design and acts as a visual guide for the novice grounded theory researcher.

DISCUSSION:

As grounded theory is not a linear process, the framework illustrates the interplay between the essential grounded theory methods and iterative and comparative actions involved. Each of the essential methods and processes that underpin grounded theory are defined in this article.

CONCLUSION:

Rather than an engagement in philosophical discussion or a debate of the different genres that can be used in grounded theory, this article illustrates how a framework for a research study design can be used to guide and inform the novice nurse researcher undertaking a study using grounded theory. Research findings and recommendations can contribute to policy or knowledge development, service provision and can reform thinking to initiate change in the substantive area of inquiry.

Keywords: Framework, grounded theory, grounded theory methods, novice researcher, study design

FOCUS GROUPS OF PSYCHOLOGY

Focus group discussion requires a team consisting of a skilled facilitator and an assistant (Burrows & Kendall, 1997; Krueger, 1994). The facilitator is central to the discussion not only by managing existing relationships but also by creating a relaxed and comfortable environment for unfamiliar participants. Similarly, the assistant's role includes observing non-verbal interactions and the impact of the group dynamics, and documenting the general content of the discussion, thereby supplementing the data (Kitzinger, 1994, 1995). Non-verbal data rely on the behaviour and actions of respondent's pre-focus group discussion, during and post-focus group discussion. Non-verbal data provide "thicker" descriptions and interpretations compared to the sole use of verbal data (Fonteyn, Vettese, Lancaster, & Bauer-Wu, 2008). Gordon (1980) outlines four non-verbal communication data sources based on participants' behaviour reflected by body displacements and postures (kinesics); use of interpersonal space to communicate attitudes (proxemics); temporal speech markers such as gaps, silences, and hesitations (chronemics); and variations in volume, pitch and quality of voice (paralinguistic).

TYPES OF FOCUS GROUP DISCUSSION

Five types of focus group discussion have been identified in the literature, and a further two are emerging with the growth in access and variety of online platforms.

SINGLE FOCUS GROUP

The key feature of a single focus group is the interactive discussion of a topic by a collection of all participants and a team of facilitators as one group in one place. This is the most common and classical type of focus group discussion (Morgan, 1996). It has been widely used by both researchers and practitioners across different disciplines (e.g. Lunt & Livingstone, 1996; Morgan, 1996; Wilkinson, 1998).

TWO-WAY FOCUS GROUP

This format involves using two groups where one group actively discusses a topic, whereas the other observes the first group (Morgan, 1996; Morgan et al., 1998). Usually, this type of focus group is conducted behind a one-way glass. The observing group and the moderator can observe and note the interactions and discussion of the first group without being seen. Hearing what the other group thinks (or by observing their interactions) often leads the second group to different conclusions than those it may have reached otherwise (Morgan, 1988). Dual moderator focus group 3.3 Involves two moderators working together, each performing a different role within the same

focus group (Krueger & Casey, 2000). The division of roles ensures a smooth progression of the session and ensures that all topics are covered..

DUELLING MODERATOR FOCUS GROUP

This involves two moderators who purposefully take opposing sides on an issue or topic under investigation (Krueger & Casey, 2000). Proponents believe that the introduction of contrary views to the discussion by the moderators is critical to achieving more in- depth disclosure of data and information (Kamberelis & Dimitriadis, 2005).

RESPONDENT MODERATOR FOCUS GROUP

In this type of focus group discussion, researchers recruit some of the participants to take up a temporary role of moderators (Kamberelis & Dimitriadis, 2005). Having one of the participants lead the discussion is thought to impact on the dynamics of the group by influencing participants' answers, thereby increasing the chances of varied and more honest responses.

MINI FOCUS GROUP

Researchers are usually faced with a situation where there is a small potential pool of participants and are difficult to reach, yet the research design requires that the topic must be discussed in a group. Under these circumstances, researchers can only convene a small group of between two and five participants (Kamberelis & Dimitriadis, 2005). Such groups are usually made up of individuals with high level of expertise (Hague, 2002).

ONLINE FOCUS GROUPS

Online focus groups are not a different type of focus group discussion per se but one borne out of the introduction of the Internet as an adaptation of traditional methods. It is applied within the online environment, using conference calling, chat rooms or other online means (Kamberelis & Dimitriadis, 2005). Online focus groups boast an aura of dynamism, modernity and competitiveness that transcends classic problems with face-to-face focus group discussion (Edmunds, 1999). However, these discussion platforms are only accessible to participants with access to the Internet and are prone to technical problems such as poor or loss of connectivity and failure to capture non-verbal data (Dubrovsky, Kiesler, & Sethna, 1991).

MATERIALS AND METHODS

Our primary aim was to understand how focus group discussion has been used as a methodological tool in conservation in the last 20 years. Using a stepwise, structured approach, we reviewed the literature on the use of this method in biodiversity, ecology and conservation research. We used a combination of "Focus Group Discussion*" AND "conserv*," OR "ecology," OR "biodivers*," where "*" denotes a wild card to search for alternative word endings, in a search query within the Scopus database from 1996 to 2016 (accessed on 20th April 2016). A subsequent search using the term "Focus Group" with the other terms was run on 21st April 2017 in the same database. The search returned 438 peer reviewed articles excluding reviews. We screened the titles and abstracts to identify only those relevant to conservation, biodiversity and ecology. Studies which had focused primarily on soil or water conservation and did not have a direct bearing on biodiversity conservation were discarded. This resulted in 196 peer- reviewed papers. We retrieved all the relevant papers and scanned the full text to check if they specifically used focus group discussion as a method to answer a research question. All studies where the technique was merely mentioned in the introduction or conclusion section were eliminated. We developed a protocol (Appendix S1, Supporting Information)

for extracting data from the final list of studies.

INTRODUCING NARRATIVE PSYCHOLOGY

It may seem obvious to turn towards psychology in order to throw light on these complex questions regarding self and identity. After all, most people are drawn towards the study of psychology because they are interested in the 'human condition', what makes us human, our loves, passions, hates and desires. But most of us find ourselves only a few months into a psychology degree when we realise that we are dealing with very little of this. Instead, you are enmeshed in statistics, principles of learning, cognition, abstract theories and theoretical models, all of which bear very little resemblance to anything you were originally interested in studying. Somewhat ironically, a great deal of contemporary psychology, supposedly an area devoted to the study of human beings, has become a totally 'lifeless' discipline. So where do we look, in the discipline of psychology, if we want to examine these questions of self and identity? In *Introducing Narrative Psychology*, I suggested four main areas of psychology which address these issues. These included:

- i) experimentally based social psychology;
- ii) humanistic psychology;
- iii) psychoanalytic/ psychodynamic psychology; and
- iv) social constructivist approaches. Highlighting the limitations associated with each of these four areas, I opened the way for a new narrative psychology approach which, although influenced by these approaches (especially humanistic and social constructivist), had the potential to avoid the pitfalls endemic within them.

NARRATIVE AS AN 'ORGANISING PRINCIPLE' FOR HUMAN LIFE

But it is not just the fact that people tell stories in making sense of themselves and others. A narrative psychological approach goes far deeper than that. For, central to this approach, is the development of a phenomenological understanding of the unique 'order of meaning' constitutive of human consciousness (see Crossley, 2000a; Polkinghorne, 1988). One of the main features of this 'order of meaning' is the experience of time and temporality. An understanding of temporality associated with the human realm of meaning is entirely different to that encountered in the natural sciences.

This is because the human realm of meaning it is not related to a 'thing' or a 'substance' but to an 'activity' (Polkinghorne, 1988: 4). Everything experienced by human beings is made meaningful, understood and interpreted in relation to the primary dimension of 'activity' which incorporates both 'time' and 'sequence'. In order to define and interpret 'what' exactly has happened on any particular occasion, the sequence of events is of extreme importance. Hence, a valid portrayal of the experience of selfhood necessitates an understanding of the inextricable connection between temporality and identity.

HUMAN EXPERIENCE AND NARRATIVE STRUCTURE

Carr (1986) argues that the reality of human experience can be characterised as one which has a narrative or story-telling character (ibid, p.18). What would it be, he asks, to experience life as a 'mere' or 'pure' sequence of isolated events, one thing after another? In order to illustrate his thesis Carr draws upon phenomenological approaches such as Husserl's theory of time consciousness which depicts the way in which humans ordinarily experience time. He basically makes a distinction between three levels of human experience: passive experience, active experience and experience of self/life. At each of these levels, human experience can be characterised by a complex temporal

structure akin to the configuration of the storied form (see also Bruner, 1990; 1991). In the following exploration of human time consciousness, we will look at each of these experiential levels in turn.

Human Life Narratively Configured? In characterising psychological life through the concept of narrative, however, are we not overplaying the significance played by the storied form in human experience? At the level of 'personal' experience, some researchers have argued that although human experience may bear some resemblance to the story, the idea that it takes on a narrative structure is mistaken. The core of this argument is that the coherent temporal unity lying at the heart of stories (the connection between beginning, middle and end) is something that is not at all intrinsic to real human events, real selves and real life. As literary theorist Frank Kermode argues, such 'narrative properties cannot be ascribed to the real' (cited in Wood, 1991: 160). The historian Louis Mink argues a similar point: 'Stories are not lived but told ... Life has no beginnings, middles and ends...Narrative qualities are transferred from art to life' (cited in Wood, 1991: 161).

Narrative Incoherence and the Breach of Trauma One good example of disruptive traumatising experiences is that of chronic or serious illness. In recent years numerous studies of chronic illness have illustrated the potentially devastating impact they can have on a person's life. This has been characterised as an 'ontological assault' in which some of the most basic, underlying existential assumptions that people hold about themselves and the world are thrown into disarray (Crossley, 2000b; Janoff Bulman, 1992; Kleinman, 1988; Taylor, S., 1989).

ADAPTING TO TRAUMA: STORIES AND NARRATIVE COHERENCE

Research into the experience of chronic and serious illness illustrates the way in which our routine, 'lived' sense of time and identity is one of implicit connection and coherence. This sense is severely disrupted in the face of trauma and it is in such contexts that stories become important as a way of rebuilding a sense of connection and coherence. As the recent proliferation of autobiographies (especially in relation to diseases such as cancer and HIV/AIDS) and self-help groups suggests, for people suffering the trauma of illness, storytelling takes on a 'renewed urgency' (Mathieson and Stam, 1995: 284). Of course, such a narrative understanding bears a strong affinity with Freud's work, which equated mental ill health with an 'incoherent story' and narrative breakdown. From this perspective, psychotherapy constituted an exercise in 'story repair' and, as Spence (1982) argued: Freud made us aware of the persuasive power of a coherent narrative - in particular of the ways in which an aptly chosen reconstruction can fill the gap between two apparently unrelated events, and in the process, make sense out of nonsense. There seems no doubt but that a well constructed story possesses a kind of narrative truth that is real and immediate and carries an important significance for the process of therapeutic change.

CONCLUSION

This paper has aimed to introduce some of the main themes underpinning a narrative approach towards psychology. Drawing on some of dominant theories in this area, it has argued that human life carries within it a narrative structure to the extent that the the individual, at the level of tacit, phenomenological experience, is constantly projecting backwards and forwards in a manner that maintains a sense of coherence, unity, meaningfulness and identity. From this perspective, the characterisation of human experience as one of constant flux, variability and incoherence, as manifest in many discursive and postmodern approaches, fails to take sufficient account of the essential unity and integrity of everyday lived experience. In accordance with this theoretical perspective, it has been argued that the experience of traumatic events such as serious illness are

instrumental in facilitating an appreciation of the way in which human life is routinely narratively configured.

This is because the experience of traumatising often serves to fundamentally disrupt the routine and orderly sense of existence, throwing into radical doubt our taken-for-granted assumptions about time, identity, meaning, and life itself. When this happens, it is possible to examine the way in which narratives become important in another sense. This is in terms of the way in which they are used to restore a sense of order and connection, and thus to re-establish a semblance of meaning in the life of the individual. Accordingly, narratives of illness are useful because they help to reveal structures or meanings that typically remain implicit or unrecognised, thus potentiating a transformation of life and elevation to another level.

CASE STUDIES IN PSYCHOLOGY

Case studies are in-depth investigations of a single person, group, event or community. Typically, data are gathered from a variety of sources and by using several different methods (e.g. observations & interviews).

The case study research method originated in clinical medicine (the case history, i.e. the patient's personal history). In psychology, case studies are often confined to the study of a particular individual.

The information is mainly biographical and relates to events in the individual's past (i.e. retrospective), as well as to significant events which are currently occurring in his or her everyday life.

The case study is not itself a research method, but researchers select methods of data collection and analysis that will generate material suitable for case studies. Case studies are widely used in psychology and amongst the best known were the ones carried out by Sigmund Freud, including Anna O and Little Hans.

Freud (1909a, 1909b) conducted very detailed investigations into the private lives of his patients in an attempt to both understand and help them overcome their illnesses. Even today case histories are one of the main methods of investigation in abnormal psychology and psychiatry. This makes it clear that the case study is a method that should only be used by a psychologist, therapist or psychiatrist, i.e. someone with a professional qualification.

There is an ethical issue of competence. Only someone qualified to diagnose and treat a person can conduct a formal case study relating to atypical (i.e. abnormal) behavior or atypical development. The procedure used in a case study means that the researcher provides a description of the behavior. This comes from interviews and other sources, such as observation.

The client also reports detail of events from his or her point of view. The researcher then writes up the information from both sources above as the case study, and interprets the information.

Strengths of Case Studies

- Provides detailed (rich qualitative) information.
- Provides insight for further research.
- Permitting investigation of otherwise impractical (or unethical) situations.

Case studies allow a researcher to investigate a topic in far more detail than might be possible if they were trying to deal with a large number of research participants (nomothetic approach) with the aim of 'averaging'.

Because of their in-depth, multi-sided approach case studies often shed light on aspects of human thinking and behavior that would be unethical or impractical to study in other ways.

Research which only looks into the measurable aspects of human behavior is not likely to give us insights into the subjective dimension to experience which is so important to psychoanalytic and humanistic psychologists.

Case studies are often used in exploratory research. They can help us generate new ideas (that might be tested by other methods). They are an important way of illustrating theories and can help show how different aspects of a person's life are related to each other.

The method is therefore important for psychologists who adopt a holistic point of view (i.e. humanistic psychologists).

Limitations of Case Studies

- Lacking scientific rigour and providing little basis for generalization of results to the wider population.
- Researchers' own subjective feeling may influence the case study (researcher bias).
- Difficult to replicate.
- Time-consuming and expensive.
- The volume of data, together with the time restrictions in place, impacted on the depth of analysis that was possible within the available resources.

Because a case study deals with only one person/event/group we can never be sure if the case study investigated is representative of the wider body of "similar" instances. This means the the conclusions drawn from a particular case may not be transferable to other settings. Because case studies are based on the analysis of qualitative (i.e. descriptive) data a lot depends on the interpretation the psychologist places on the information she has acquired. This means that there is a lot of scope for observer bias and it could be that the subjective opinions of the psychologist intrude in the assessment of what the data means.

For example, Freud has been criticized for producing case studies in which the information was sometimes distorted to fit the particular theories about behavior).

This is also true of Money's interpretation of the Bruce/Brenda case study (Diamond, 1997) when he ignored evidence that went against his theory.

ETHNOGRAPHY

Ethnography, descriptive study of a particular human society or the process of making such a study. Contemporary ethnography is based almost entirely on fieldwork and requires the complete immersion of the anthropologist in the culture and everyday life of the people who are the subject of his study.

There has been some confusion regarding the terms ethnography and ethnology. The latter, a term

more widely used in Europe, encompasses the analytical and comparative study of cultures in general, which in American usage is the academic field known as cultural anthropology (in British usage, social anthropology). Increasingly, however, the distinction between the two is coming to be seen as existing more in theory than in fact. Ethnography, by virtue of its intersubjective nature, is necessarily comparative. Given that the anthropologist in the field necessarily retains certain cultural biases, his observations and descriptions must, to a certain degree, be comparative. Thus the formulating of generalizations about culture and the drawing of comparisons inevitably become components of ethnography.

The description of other ways of life is an activity with roots in ancient times. Herodotus, the Greek traveler and historian of the 5th century BC, wrote of some 50 different peoples he encountered or heard of, remarking on their laws, social customs, religion, and appearance. Beginning with the age of exploration and continuing into the early 20th century, detailed accounts of non-European peoples were rendered by European traders, missionaries, and, later, colonial administrators. The reliability of such accounts varies considerably, as the Europeans often misunderstood what they saw or had a vested interest in portraying their subjects less than objectively.

Modern anthropologists usually identify the establishment of ethnography as a professional field with the pioneering work of both the Polish-born British anthropologist Bronisław Malinowski in the Trobriand Islands of Melanesia (c. 1915) and the American anthropologist Margaret Mead, whose first fieldwork was in Samoa (1925). Ethnographic fieldwork has since become a sort of rite of passage into the profession of cultural anthropology. Many ethnographers reside in the field for a year or more, learning the local language or dialect and, to the greatest extent possible, participating in everyday life while at the same time maintaining an observer's objective detachment. This method, called participant-observation, while necessary and useful for gaining a thorough understanding of a foreign culture, is in practice quite difficult. Just as the anthropologist brings to the situation certain inherent, if unconscious, cultural biases, so also is he influenced by the subject of his study. While there are cases of ethnographers who felt alienated or even repelled by the culture they entered, many—perhaps most—have come to identify closely with “their people,” a factor that affects their objectivity. In addition to the technique of participant-observation, the contemporary ethnographer usually selects and cultivates close relationships with individuals, known as informants, who can provide specific information on ritual, kinship, or other significant aspects of cultural life. In this process also the anthropologist risks the danger of biased viewpoints, as those who most willingly act as informants frequently are individuals who are marginal to the group and who, for ulterior motives (e.g., alienation from the group or a desire to be singled out as special by the foreigner), may provide other than objective explanations of cultural and social phenomena. A final hazard inherent in ethnographic fieldwork is the ever-present possibility of cultural change produced by or resulting from the ethnographer's presence in the group.

Contemporary ethnographies usually adhere to a community, rather than individual, focus and concentrate on the description of current circumstances rather than historical events. Traditionally, commonalities among members of the group have been emphasized, though recent ethnography has begun to reflect an interest in the importance of variation within cultural systems. Ethnographic studies are no longer restricted to small primitive societies but may also focus on such social units as urban ghettos. The tools of the ethnographer have changed radically since Malinowski's time. While detailed notes are still a mainstay of fieldwork, ethnographers have taken full advantage of technological developments such as motion pictures and tape recorders to augment their written

accounts.

Ethnomusicology, field of scholarship that encompasses the study of all world musics from various perspectives. It is defined either as the comparative study of musical systems and cultures or as the anthropological study of music. Although the field had antecedents in the 18th and early 19th centuries, it began to gather energy with the development of recording techniques in the late 19th century.

It was known as comparative musicology until about 1950, when the term ethnomusicology was introduced simultaneously by the Dutch scholar of Indonesian music Jaap Kunst and by several American scholars, including Richard Waterman and Alan Merriam. In the period after 1950, ethnomusicology burgeoned at academic institutions. Several societies and periodicals were founded, the most notable being the Society for Ethnomusicology, which publishes the journal *Ethnomusicology*. Some ethnomusicologists consider their field to be associated with musicology, while others see the field as related more closely to anthropology.

Among the general characteristics of the field are dependence on field research, which may include the direct study of music performance, and interest in all types of music produced in a society, including folk, art, and popular genres. Among the field's abiding concerns are whether outsiders can validly study another culture's music and what the researcher's obligations are to his informants, teachers, and consultants in colonial and postcolonial contexts. Over time, ethnomusicologists have gradually abandoned the detailed analytical study of music and increased

their focus on the anthropological study of music as a domain of culture. With this shift in emphasis has come greater concern with the study of popular musics as expressions of the relationships between dominant and minority cultures; of music as a reflection of political, social-ethnic, and economic movements; and of music in the context of the cultural meanings of gender. See also anthropology: Ethnomusicology.

What is Statistics in Psychology: Measures of Central Tendency and Dispersion. Normal Probability Curve. Parametric [t-test] and Non-parametric tests [Sign Test, Wilcoxon Signed rank test, Mann-Whitney test, Kruskal-Wallis test, Friedman]. Power analysis. Effect size

STATISTICS IN PSYCHOLOGY: MEASURES OF CENTRAL TENDENCY AND DISPERSION. NORMAL PROBABILITY CURVE. PARAMETRIC [T-TEST] AND NON-PARAMETRIC TESTS [SIGN TEST, WILCOXON SIGNED RANK TEST, MANN-WHITNEY TEST, KRUSKAL-WALLIS TEST, FRIEDMAN]. POWER ANALYSIS. EFFECT SIZE

Statistics in Psychology: Measures of Central Tendency and Dispersion.

The following points highlight the three types of measures of central tendency. The types are: 1. Mean 2. Median 3. Mode

TYPE # 1. MEAN:

It is also known as arithmetic mean. It is the ordinary average in Arithmetic.

ACCORDING TO GARRETT, "THE ARITHMETIC MEAN, OR MORE SIMPLY THE MEAN, IS

THE SUM OF THE SEPARATE SCORES OR MEASURES DIVIDED BY THEIR NUMBER.”

Calculation of the Mean when Data are Ungrouped:

In ungrouped data, mean is the sum of separate scores or measures divided by their number. If a man earns Rs. 5, Rs. 6 Rs. 4, Rs. 9 on four successive days his mean of daily wage (Rs. 6) is obtained by dividing the sum of his daily earnings by the number of days he has worked. The formula for the mean (M) of a series of ungrouped measures is: $M = \frac{\sum X}{N}$ (arithmetic mean calculated from ungrouped data).

Where \sum means the “sum of,”

X stands for a score of other measure,

N is the number of measures in the series.

CALCULATION OF THE MEAN WHEN DATA ARE GROUPED:

When data or measures have been grouped into a frequency distribution, the mean may be calculated by a simple formula:

F stands for the frequency of each class-interval.

X represents the mid-point in each class-interval. N stands for the total number of frequencies.

THE FOLLOWING EXAMPLE IS GIVEN FOR CALCULATING THE MEAN FROM GROUPED DATA:

In calculating mean we first of all find the mid-point (x) of various class- intervals. After finding x we find the fx. Column fx is found by multiplying the mid-point (x) of each interval by the number of scores (f) on it; the mean (47.4) is then simply the sum of the fx namely, (2607.5) divided by N (55). This is known as long method of finding the mean.

SHORT METHOD OF FINDING THE MEAN:

The long method of finding the mean gives accurate results but often requires the handling of large numbers and entails tedious calculation. Because of this, short method or the “assumed mean” method has been devised for computing the mean.

ACCORDING TO THIS METHOD WE SHALL FIND THE MEAN AS FOLLOWS:

Mean = AM + Ci

AM stands for the assumed mean or guessed mean, C stands for correction in terms of class-interval, i stands for the length of class-intervals. Ci stands for $\frac{fx'}{N} \times i$

NOW, WE SHALL CALCULATE THE MEAN BY SHORT METHOD FROM THE FOLLOWING DATA:

The various steps in calculating the mean by the short method may be explained below:

1. In the first column, write the class-intervals.
2. After writing class-intervals, find the mid-points.
3. Then write the frequency.
4. Assume a mean as near the centre of the distribution as possible and preferably on the interval containing the largest frequency.
5. After assuming the mean, find its deviation in terms of class- interval from the assumed mean in units of interval.
6. Multiply each deviation (x') by its appropriate f, the f opposite to it.

7. Find the algebraic sum of the plus and minus of x' and divide the sum by N , number of cases. This gives C , the correction in units of class interval.
8. Multiply C by the interval length (i) to get C_i , the score correction.
9. Add C_i algebraically to the AM. This will give the true mean.

ADVANTAGES OF THE MEAN:

1. It utilises all the items in a group.
2. It is widely understood and easy to calculate.
3. It can be known even when number of items and their aggregate values are known, but details of the different items are not available.
4. It is always definite,
5. It is capable of further algebraic treatment.
6. It is less subject to chance variation. Hence it is more stable measure of central tendency.

LIMITATIONS OF THE MEAN:

1. It may not be an actual item in a series.
2. It cannot be computed by merely observing the series, unless the series, is very simple.
3. It is essential to know the actual values of all the items before computing the arithmetic mean, but in the case of median and mode the items on the extreme may be ignored without understanding the values of these measurements.

THERE ARE MORE IMPORTANT THINGS:

Questioning American Psychology's Commitment to Personal Happiness and Self-esteem While I hope I am still too young to write a retrospective of my career, I find myself reflecting on recurring themes in both my professional career as a practicing and teaching psychologist and my personal life. I hope that the reader will indulge a certain personal focus and use of the personal "I" pronoun even though this is a voice not used much in academic psychology.

My focus in this article is on the commitment in American psychology to the ideal of personal happiness and Self-esteem. While for most Americans these aims seem self-evident, I have grown increasingly uncomfortable with and skeptical of these mostly unquestioned assumptions in my field. I hope that what I have to say can influence the reader both professionally and personally in their pursuit of academic goals and the right kind of life. I will focus on three primary assumptions made by modern American psychology: first, that human beings should or ought to be happy; second, that we should seek to be free of suffering; and third, that humans beings should (and deserve to) feel good about themselves.

HEALTHY PEOPLE SUFFER

Much of modern psychotherapy sets the goal for a healthy individual to be free of suffering. Measures of mental health are almost always organized as "symptom checklists" which add up negative symptoms (like feelings of unhappiness or anxiety) to give you a score reflecting the "amount" of suffering you are experiencing. In other words, each symptom of suffering is counted against your mental health. This is universal enough that it must seem to most psychologists to be self-evident that suffering is bad and a sign of poor mental health.

I myself helped create one of these measures and also worked in a clinic that used such a checklist to track the progress of psychotherapy. I was certainly committed to ending the suffering of my

clients and believed that problems needed to be fixed so that a person would be free of suffering and problems.

FEELING GOOD ABOUT ONESELF

is to Encourage Illusory Thinking Perhaps the most provocative of my professional disagreements has to do with the way that we should think of ourselves. American psychology has long had an obsession with positive Self-esteem and working to help psychotherapy patients “feel good about themselves.” This kind of positive self-image is encouraged regardless of the kind of lifestyle or decisions the person is making in their lives. People are encouraged to think positively of themselves even if they are failing miserably in their relationships, career, and personal lives. One of my colleagues worked at a mental hospital where they treated youth who were convicted of violent sexual assault. Even these youth were taught to love themselves more, disregarding or separating themselves from their horrific behavior. I believe that this focus in psychology is counter-productive and I have a feeling that most of us know that it is ultimately wrong. I will explain.

This article throws light upon the fifteen main principles of normal probability curve. Some of the properties are: 1. The normal curve is symmetrical 2. The normal curve is unimodal 3. Mean, median and mode coincide 4. The maximum ordinate occurs at the centre 5. The normal curve is asymptotic to the X-axis 6. The height of the curve declines symmetrically and Others.

1. THE NORMAL CURVE IS SYMMETRICAL:

The Normal Probability Curve (N.P.C.) is symmetrical about the ordinate of the central point of the curve. It implies that the size, shape and slope of the curve on one side of the curve is identical to that of the other.

That is, the normal curve has a bilateral symmetry. If the figure is to be folded along its vertical axis, the two halves would coincide. In other words the left and right values to the middle central point are mirror images.

2. THE NORMAL CURVE IS UNIMODAL:

Since there is only one point in the curve which has maximum frequency, the normal probability curve is unimodal, i.e. it has only one mode.

PARAMETRIC [T-TEST] AND NON-PARAMETRIC TESTS [SIGN TEST PSYCHOLOGY PARAMETRIC and NON-PARAMETRIC TESTS

In the literal meaning of the terms, a parametric statistical test is one that makes assumptions about the parameters (defining properties) of the population distribution(s) from which one's data are drawn, while a non-parametric test is one that makes no such assumptions.

PARAMETRIC TESTS:

Parametric tests normally involve data expressed in absolute numbers or values rather than ranks; an example is the Student's t- test. The parametric statistical test operates under certain conditions. Since these conditions are not ordinarily tested, they are assumed to hold valid. The meaningfulness of the results of a parametric test depends on the validity of the assumption. Proper interpretation of parametric test based on normal distribution also assumes that the scene being analysed results from measurement in at least an interval scale. Let us try to understand the term population.

Population refers to the entire group of people which a researcher intends to understand in regard to a phenomenon. The study is generally conducted on a sample of the said population and the obtained results are then applied to the larger population from which the sample was selected.

Tests like t , z , and F are called parametrical statistical tests. T-tests: A T-test is used to determine if the scores of two groups differ on a single variable. A t-test is designed to test for the differences in mean scores. For instance, you could use t-test to determine whether writing ability differs among students in two classrooms. It may be mentioned here that the parametric tests, namely, t-test and F-test, are considered to be quite robust and are appropriate even when some assumptions are not met.

ASSUMPTIONS OF PARAMETRIC STATISTICS

Parametric tests like, 't and f' tests may be used for analysing the data which satisfy the following conditions :

- The population from which the sample have been drawn should be normally distributed. Normal Distributions refer to Frequency distribution following a normal curve, which is infinite at both the ends.
- The variables involved must have been measured interval or ratio scale. Variable and its types: characteristic that can have different values.
- Types of Variables Dependent Variable: Variable considered to be an effect; usually a measured variable. Independent Variable: Variable considered being a cause. The observation must be independent.
- The inclusion or exclusion of any case in the sample should not unduly affect the results of study.
- These populations must have the same variance or, in special cases, must have a known ratio of variance. This we call homoscedasticity.
- The samples have equal or nearly equal variances. This condition is known as equality or homogeneity of variances and is particularly important to determine when the samples are small. The observations are independent.
- The selection of one case in the sample is not dependent upon the selection of any other case.
- Most of the statistical tests we perform are based on a set of assumptions. When these assumptions are violated the results of the analysis can be misleading or completely erroneous.

NORMALITY:

Data have a normal distribution (or at least is symmetric)♣ Homogeneity of variances: Data from multiple groups have the same variance♣ Linearity: Data have a linear relationship♣ Independence: Data are independent♣ We explore in detail what it means for data to be normally distributed in Normal Distribution, but in general it means that the graph of the data has the shape of a bell curve. Such data is symmetric around its mean and has kurtosis equal to zero.

In Testing for Normality and Symmetry we provide tests to determine whether data meet this assumption. Some tests (e.g. ANOVA) require that the groups of data being studied have the same variance. In Homogeneity of Variances we provide some tests for determining whether groups of data have the same variance. Some tests (e.g. Regression) require that there be a linear correlation between the dependent and independent variables. Generally linearity can be tested graphically using scatter diagrams or via other techniques explored in Correlation, Regression and Multiple Regression.

INTRODUCTION:

The t-test is a basic test that is limited to two groups. For multiple groups, you would have

- to compare each pair of groups. For example with three groups there would be three tests (AB, AC, BC) whilst with seven groups there would be need of 21 tests.

The basic principle is to test the null hypothesis that means of the two groups are equal

THE T-TEST ASSUMES:

A normal distribution (parametric data)- Underlying variances are equal (if not, use welch's test)- It is used when there is random assignment and only two sets of measurement to compare.- There are two main types of t-test: Independent – measures – t- test: when samples are not matched.

- Match – pair – t-test: when samples appear in pairs (eg. before and after)
- A single – sample t-test compares a sample against a known figure. For example when measures- of a manufactured item are compared against the required standard.

APPLICATIONS:

To compare the mean of a sample with population mean. (Simple t-test)

- To compare the mean of one sample with the independent sample. (Independent Sample ttest)
- To compare between the values (readings) of one sample but in two occasions.

(Paired· sample t-test) Independent Samples t-Test (or 2-Sample t- Test) The independent samples t-test is probably the single most widely used test in statistics. It is used to compare differences between separate groups. In Psychology, these groups are often composed by randomly assigning research participants to conditions.

However, this test can also be used to explore differences in naturally occurring groups. For example, we may be interested in differences of emotional intelligence between males and females. Any differences between groups can be explored with the independent t-test, as long as the tested members of each group are reasonably representative of the population.

NON-PARAMETRIC STATISTICS

The term non-parametric was first used by Wolfowitz, 1942. To understand the idea of nonparametric statistics it is required to have a basic understanding of parametric statistics which we have already discussed.

A parametric test requires a sample to be normally distributed. A nonparametric test does not rely on parametric assumptions like normality. Nonparametric test create flexible demands of the data. To make standard parametric legitimate, some provisions need to fulfilled, especially for minor sample sizes. For example, the requirement of the one sample t-test is that the observation must be made from ordinarily distributed population. In case, the provision is defined, then the resultants may not be credible. However, in case of Wilcoxon Signed rank test to illustrate valid inference, normality is not required. We can assume that the sampling distribution is normal even if we are not sure that the distribution of the variable in the population is normal, as long as our sample is large enough, (for example, 100 or more observations). However, if our selected sample is too large, then those tests can only be utilized if we are assured that the variable is disseminated normally. The applications of tests that are based on the normality assumptions are restricted by the deficiency of accurate measurement. For example, a study measures Grade Point Average (GPA) in place of

percentage Marks. This measurement scale does not measure the exact distance between the marks of two students. GPA allows us only to rank the students from “good” to “poor” students. This measurement is called the ordinal scale. Statistical techniques such as Analysis of Variance, t-test etc. assume that the data are measured either on interval or ratio scale. In such situations where data is measured on nominal or ordinal scale nonparametric tests are more useful. Thus, nonparametric tests are used when either: Sample is not normally distributed

- Sample size is small
- The variables are measured on nominal or ordinal scale.

There is at least one nonparametric equivalent for each parametric general type of test. Broadly, these tests fall into the following categories: Test of differences between groups (independent samples

- Test of differences (dependent samples)
- Test of relationships between variables.
- The concepts and procedure to undertake Run Test, Chi-Square Test, Wilcoxon Signed Rank Test, Mann-Whitney Test and Kruskal- Wallis Test are discussed here under: Run Test: Run Test is used to examine the randomness of data. Many statistical procedures require data to be randomly selected.

Statistics is an Independent branch and its use is highly prevalent in all the fields of knowledge. Many methods and techniques are used in statistics. These have been grouped under parametric and non-parametric statistics. Statistical tests which are not based on a normal distribution of data or on any other assumption are also known as distribution-free tests and the data are generally ranked or grouped. Examples include the chi-square test and Spearman’s rank correlation coefficient. The first meaning of non-parametric covers techniques that do not rely on data belonging to any particular distribution. These include, among others:

1. Distribution free methods: This means that there are no assumptions that the data have been drawn from a normally distributed population. This consists of non-parametric statistical models, inference and statistical tests.
2. Non-parametric statistics: In this the statistics is based on the ranks of observations and do not depend on any distribution of the population.
3. No assumption of a structure of a model: In non-parametric statistics, the techniques do not assume that the structure of a model is fixed. In this, the individual variables are typically assumed to belong to parametric distributions, and assumptions about the types of connections among variables are also made. These techniques include, among others:
 - a) Non-parametric regression
 - b) Non-parametric hierarchical Bayesian models.

In non-parametric regression, the structure of the relationship is treated nonparametrically. In regard to the Bayesian models, these are based on the Dirichlet process, which allows the number of latent variables to grow as necessary to fit the data. In this the individual variables however follow parametric distributions and even the process controlling the rate of growth of latent variables follows a parametric distribution.

ASSUMPTIONS OF PARAMETRIC STATISTICS

Parametric tests like, 't and f' tests may be used for analysing the data which satisfy the following conditions :

- The population from which the sample have been drawn should be normally distributed. Normal Distributions refer to Frequency distribution following a normal curve, which is infinite at both the ends.
- The variables involved must have been measured interval or ratio scale. Variable and its types:
- characteristic that can have different values. Types of Variables Dependent Variable: Variable considered to be an effect; usually a measured variable. Independent Variable: Variable considered being a cause.
- The observation must be independent.
- The inclusion or exclusion of any case in the sample should not unduly affect the results of study.
- These populations must have the same variance or, in special cases, must have a known ratio of variance.
- This we call homosedasticity.
- The samples have equal or nearly equal variances.
- This condition is known as equality or homogeneity of variances and is particularly important to determine when the samples are small. The observations are independent.
- The selection of one case in the sample is not dependent upon the selection of any other case.

ASSUMPTIONS OF NON-PARAMETRIC STATISTICS

We face many situations where we can not meet the assumptions and conditions and thus cannot use parametric statistical procedures. In such situation we are bound to apply non-parametric statistics.

If our sample is in the form of nominal or ordinal scale and the distribution of sample is not normally distributed, and also the sample size is very small, it is always advisable to make use of the non-parametric tests for comparing samples and to make inferences or test the significance or trust worthiness of the computed statistics.

In other words, the use of non-parametric tests is recommended in the following situations: Where sample size is quite small. If the size of the sample is as small as $N=5$ or $N=6$, the only alternative is to make use of non-parametric tests.

When assumption like normality of the distribution of scores in the population are doubtful, we use non-parametric tests.

When the measurement of data is available either in the form of ordinal or nominal scales or when the data can be expressed in the form of ranks or in the shape of + signs or – signs and classification like “good-bad”, etc., we use non-parametric statistics.

ADVANTAGES OF NON-PARAMETRIC STATISTICS

If the sample size is very small, there may be no alternative except to use a nonparametric statistical test. Non-parametric tests typically make fewer assumptions about the data and may be relevant to a particular situation.

The hypothesis tested by the non-parametric test may be more appropriate for research investigation. Non-parametric statistical tests are available to analyse data which are inherently in

ranks as well as data whose seemingly numerical scores have the strength of ranks. For example, in studying a variable such as anxiety, we may be able to state that subject A is more anxious than subject B without knowing at all exactly how much more anxious A is. Thus if the data are inherently in ranks, or even if they can be categorised only as plus or minus (more or less, better or worse), they can be treated by non-parametric methods.

Non-parametric methods are available to treat data which are simply classificatory and categorical, i.e., are measured in nominal scale. Samples made up of observations from several different populations at times cannot be handled by Parametric tests.

Non-parametric statistical tests typically are much easier to learn and to apply than are parametric tests. In addition, their interpretation often is more direct than the interpretation of parametric tests.

DISADVANTAGES OF NON-PARAMETRIC STATISTICAL TESTS

If all the assumptions of a parametric statistical model are in fact met in the data and the research hypothesis could be tested with a parametric test, then non-parametric statistical tests are wasteful. The degree of wastefulness is expressed by the power-efficiency of the non-parametric test. It will be remembered that, if a non-parametric statistical test has power efficiency of say, 90 percent, this means that when all conditions of parametric statistical test are satisfied the appropriate parametric test would be just as effective with a sample which is 10 percent smaller than that used in non-parametric analysis. Another objection to non-parametric statistical test has to do with convenience. Tables necessary to implement non-parametric tests are scattered widely and appear in different formats (The same is true of many parametric tests too).

WILCOXON SIGNED RANK TEST

Wilcoxon signed-ranks test

a nonparametric statistical procedure used to determine whether a single sample is derived from a population in which the median equals a specified value. The data are values obtained using a ratio scale, each is subtracted from the hypothesized value of the population median, and the difference scores are then ranked. The test takes into account the direction of the differences and gives more weight to large differences than to small differences.

The Wilcoxon test, which can refer to either the Rank Sum test or the Signed Rank test version, is a nonparametric statistical test that compares two paired groups. The tests essentially calculate the difference between sets of pairs and analyzes these differences to establish if they are statistically significantly different from one another.

KEY TAKEAWAYS

- The Wilcoxon test is a nonparametric statistical test that compares two paired groups, and comes in two versions the Rank Sum test or the Signed Rank test.
- The goal of the test is to determine if two or more sets of pairs are different from one another in a statistically significant manner.
- Both versions of the model assume that the pairs in the data come from dependent populations, i.e. following the same person or share price through time or place.

The Basics of the Wilcoxon Test

The Rank Sum and Signed Rank tests were both proposed by American statistician Frank Wilcoxon

in a groundbreaking research paper published in 1945. The tests laid the foundation for hypothesis testing of nonparametric statistics, which are used for population data that can be ranked but do not have numerical values, such as customer satisfaction or music reviews. Nonparametric distributions do not have parameters and cannot be defined by an equation as parametric distributions can.

The types of questions that the Wilcoxon Test can help us answer include things like:

- Are test scores different from 5th grade to 5th grade for the same students?
- Does a particular drug have an effect on health when tested on the same individuals?

These models assume that the data comes from two matched, or dependent, populations, following the same person or stock through time or place. The data is also assumed to be continuous as opposed to discrete. Because it is a non-parametric test it does not require a particular probability distribution of the dependent variable in the analysis.

Versions of the Wilcoxon Test

- The Wilcoxon Rank Sum test can be used to test the null hypothesis that two populations have the same continuous distribution. The base assumptions necessary to employ this method of testing is that the data are from the same population and are paired, the data can be measured on at least an interval scale, and the data were chosen randomly and independently.
- The Wilcoxon Signed Rank test assumes that there is information in the magnitudes and signs of the differences between paired observations. As the nonparametric equivalent of the paired student's t-test, the Signed Rank can be used as an alternative to the t-test when the population data does not follow a normal distribution.

Calculating a Wilcoxon Test Statistic

The steps for arriving at a Wilcoxon Signed-Ranks Test Statistic, W , are as follows:

For each item in a sample of n items, obtain a difference score D_i between two measurements (i.e., subtract one from the other).

1. Neglect then positive or negative signs and obtain a set of n absolute differences $|D_i|$.
2. Omit difference scores of zero, giving you a set of n' non-zero absolute difference scores, where $n' \leq n$. Thus, n' becomes the actual sample size.
3. Then, assign ranks R_i from 1 to n to each of the $|D_i|$ such that the smallest absolute difference score gets rank 1 and the largest gets rank n . If two or more $|D_i|$ are equal, they are each assigned the average rank of the ranks they would have been assigned individually had ties in the data not occurred.
4. Now reassign the symbol “+” or “-” to each of the n ranks R_i , depending on whether D_i was originally positive or negative.
5. The Wilcoxon test statistic W is subsequently obtained as the sum of the positive ranks.

In practice, this test is easily performed using statistical analysis software or a spreadsheet. The **Wilcoxon signed rank test** (also called the Wilcoxon signed rank sum test) is a non-parametric test. When the word “non- parametric” is used in stats, it doesn’t quite mean that you know nothing about the population. It usually means that you know the population data does not have a normal distribution. The Wilcoxon signed rank test should be used if the differences between pairs of data are non-normally distributed.

Two slightly different versions of the test exist:

- The **Wilcoxon signed rank test** compares your sample median against a hypothetical median.
- The **Wilcoxon matched-pairs signed rank test** computes the difference between each set of matched pairs, then follows the same procedure as the signed rank test to compare the sample against some median.

The term “Wilcoxon” is often used for either test. This usually isn’t confusing, as it should be obvious if the data is matched, or not matched.

The null hypothesis for this test is that the medians of two samples are equal. It is generally used:

MANN-WHITNEY TEST

It is generally recognized that psychological studies often involve small samples. For example, researchers in clinical psychology often have to deal with small samples that generally include less than 15 participants (Kazdin 2003; Shapiro & Shapiro, 1983; Kraemer, 1981; Kazdin, 1986). Although the researchers aim at collecting large normally distributed samples, they rarely have the appropriate amount of resources (time and money) to recruit a sufficient number of participants. It is thus useful, particularly in psychology, to consider tests that have few constraints and allow experimenters to test their hypotheses on small and poorly distributed samples.

A lot of studies do not provide very good tests for their hypotheses because their samples have too few participants (for a review of the reviews, see Sedlmeier & Gigerenzer, 1989). Even though small samples can be methodologically questionable (e.g. generalization is difficult); they can be useful to infer conclusions on the population if the adequate statistical test is applied.

THE MANN-WHITNEY

Hypotheses of the Test The Mann-Whitney U test null hypothesis (H_0) stipulates that the two groups come from the same population. In other terms, it stipulates that the two independent groups are homogeneous and have the same distribution. The two variables corresponding to the two groups, represented by two continuous cumulative distributions, are then called stochastically equal.

In this case, the null hypothesis is rejected for values of the test statistic falling into either tail of its sampling distribution (see Figure 1 for a visual illustration). On the other hand, if a one-sided or one-tailed test is required, the alternative hypothesis suggests that the variable of one group is stochastically larger than the other group, according to the test direction (positive or negative). Here, the null hypothesis is rejected only for values of the test statistic falling into one specified tail of its sampling distribution (see Figure 1 for a visual illustration).

In more specific terms, let one imagine two independent groups that have to be compared. Each group contains a number n of observations. The Mann-Whitney test is based on the comparison of each observation from the first group with each observation from the second group. According to this, the data must be sorted in ascending order. The data from each group are then individually compared together. The highest number of possible paired comparisons is thus: $(n_x n_y)$, where n_x is the number of observations in the first group and n_y the number of observations in the second. If the two groups come from the same population, as stipulated by the null hypothesis, each datum of the first group will have an equal chance of being larger or smaller than each datum of the second group,

that is to say a probability p of one half ($1/2$). In technical terms, Assumptions of the Test In order to verify the hypotheses, the sample must meet certain conditions. These conditions can be easily respected. They are of three types:

- a) The two investigated groups must be randomly drawn from the target population.
- b) implies the absence of measurement and sampling errors (Robert et al., 1988). Note that an error of these last types can be involved but must remain small.
- c) Each measurement or observation must correspond to a different participant. In statistical terms, there is independence within groups and mutual independence between groups.
- d) The data measurement scale is of ordinal or continuous type. The observations values are then of ordinal, relative or absolute scale type.

COMPUTING THE MANN-WHITHNEY

U test using SPSS First of all, one needs to enter the data in SPSS, not forgetting the golden rule which stipulates that each participant's observation must occupy a line. The numbers of the groups are generally 1 and 2, except whenever it is more practical to use other numbers. Following the entry of the data, open a new syntax window and enter the following syntax.

DISCUSSION

Like any statistical test, the Mann-Whitney U has forces and weaknesses. In terms of forces, like any non-parametric test, the Mann-Whitney U does not depend on assumptions on the distribution (i.e. one does not need to postulate the data distribution of the target population).

One can also use it when the conditions of normality neither are met nor realisable by transformations. Moreover, one can use it when his sample is small and the data are semi-quantitative or at least ordinal. In short, few constraints apply to this test.

The Mann-Whitney U test is also one of the most powerful non-parametric tests (Landers, 1981), where the statistical power corresponds to the probability of rejecting a false null hypothesis. This test has thus good probabilities of providing statistically significant results when the alternative hypothesis applies to the measured reality.

Even if it is used on average-size samples (between 10 and 20 observations) or with data that satisfy the constraints of the t-test, the Mann-Whitney has approximately 95% of the Student's t-test statistical power (Landers). By comparison with the t-test, the Mann-Whitney U is less at risk to give a wrongfully significant result when there is presence of one or two extreme values in the sample under investigation (Siegel and Castellan, 1988).

the distributions of these populations do not meet the criteria of normality (Zimmerman, 1985). On the other hand, very little statistical power is lost if the Mann-Whitney U test is used instead of the t-test and this, under statistically controlled conditions (Gibbons and Chakraborti, 1991). In addition, the Mann-Whitney U test is, in exceptional circumstances, more powerful than the t-test. Indeed, it is more powerful in the detection of a difference on the extent of the possible differences between populations' averages than the t-test when a small manpower is associated with a small variance (Zimmerman, 1987). On the other hand, when the sample size is similar or when the smallest manpower has the greatest variance, the t-test is more powerful on all the extent of the possible

differences (Zimmerman). Lastly, the Monte Carlo methods showed that the Mann-Whitney U test can give wrongfully significant results, that is to say the erroneous acceptance of the alternative hypothesis (Robert & Casella, 2004). This type of results is at risk to be obtained whenever one's samples are drawn from two populations with a same average but with different variances.

In this type of situations, it is largely more reliable to use the t-test which gives a possibility for the samples to come from distributions with different variances. The alpha (α) error or of type I is to reject H_0 whereas this one is true. This error is thus amplified when Mann-Whitney U is applied in a situation of heteroscedasticity or distinct variances. In addition, some solutions exist to this major problem (see Kasuya, 2001).

KRUSKAL WALLIS ANOVA TEST IN PSYCHOLOGY

The Kruskal-Wallis test is a nonparametric (distribution free) test, and is used when the assumptions of one-way ANOVA are not met. Both the Kruskal-Wallis test and one-way ANOVA assess for significant differences on a continuous dependent variable by a categorical independent variable (with two or more groups). In the ANOVA, we assume that the dependent variable is normally distributed and there is approximately equal variance on the scores across groups. However, when using the Kruskal-Wallis Test, we do not have to make any of these assumptions. Therefore, the Kruskal-Wallis test can be used for both continuous and ordinal-level dependent variables. However, like most non-parametric tests, the Kruskal-Wallis Test is not as powerful as the ANOVA.

Null hypothesis: Null hypothesis assumes that the samples (groups) are from identical populations.

Alternative hypothesis: Alternative hypothesis assumes that at least one of the samples (groups) comes from a different population than the others.

EXAMPLE QUESTIONS ANSWERED:

How do test scores differ between the different grade levels in elementary school? Do job satisfaction scores differ by race?

The distribution of the Kruskal-Wallis test statistic approximates a chi-square distribution, with $k-1$ degrees of freedom, if the number of observations in each group is 5 or more. If the calculated value of the Kruskal-Wallis test is less than the critical chi-square value, then the null hypothesis cannot be rejected. If the calculated value of Kruskal-Wallis test is greater than the critical chi-square value, then we can reject the null hypothesis and say that at least one of the samples comes from a different population.

The Kruskal Wallis test is the non parametric alternative to the One Way ANOVA. Non parametric means that the test doesn't assume your data comes from a particular distribution. The H test is used when the assumptions for ANOVA aren't met (like the assumption of normality). It is sometimes called the one-way ANOVA on ranks, as the ranks of the data values are used in the test rather than the actual data points.

The test determines whether the medians of two or more groups are different. Like most statistical tests, you calculate a test statistic and compare it to a distribution cut-off point. The test statistic used in this test is called the **H statistic**. The hypotheses for the test are:

- H_0 : population medians are equal.
- H_1 : population medians are not equal.

The Kruskal Wallis test will tell you if there is a significant difference between groups. However, it won't tell you which groups are different. For that, you'll need to run a Post Hoc test.

Examples

1. You want to find out how test anxiety affects actual test scores. The independent variable "test anxiety" has three levels: no anxiety, low-medium anxiety and high anxiety. The dependent variable is the exam score, rated from 0 to 100%.
2. You want to find out how socioeconomic status affects attitude towards sales tax increases. Your independent variable is "socioeconomic status" with three levels: working class, middle class and wealthy. The dependent variable is measured on a 5-point Likert scale from strongly agree to strongly disagree.

KRUSKAL-WALLIS H TEST

The Kruskal-Wallis test is considered a nonparametric analogue to the parametric one-way ANOVA presented in Chapter 10. Just as the one-way ANOVA is an extension of the two independent groups t-test, the Kruskal-Wallis test is an extension of the Mann-Whitney U test.

The Kruskal-Wallis test handles k-independent groups of samples. Like the Mann-Whitney U test, this test uses ranks. The null and alternative hypotheses are stated verbally. For example:

ho: The diet plans A, B and C are equally effective. h1: At least one of the following is true: A is different from B, A is different from C or B is different from C.

The test statistic for the Kruskal-Wallis H test is obtained through the following steps:

- Rank all the data disregarding group membership, where a rank of "1" is given to the highest score. For observations that are tied (having the same value), compute the average rank and assign this average to each of the tied observations.
- Add up the ranks for each group, designated as $r(i)$, where i is the group number..

FRIEDMAN]. POWER ANALYSIS. EFFECT SIZE IN PSYCHOLOGY

The reporting of accurate and appropriate conclusions is an essential aspect of scientific research, and failure in this endeavor can threaten the progress of cumulative knowledge. This is highlighted by the current reproducibility crisis, and this crisis disproportionately affects fields that use behavioral research methods, as in much lighting research. A sample of general and topic-specific lighting research papers was reviewed for information about sample sizes and statistical reporting. This highlighted that lighting research is generally underpowered and, given median sample sizes, is unlikely to be able to reveal small effects. Lighting research most commonly uses parametric statistical tests, but assessment of test assumptions is rarely carried out.

This risks the inappropriate use of statistical tests, potentially leading to type I and type II errors. Lighting research papers also rarely report measures of effect size, and this can hamper cumulative science and power analyses required to determine appropriate sample sizes for future research studies. Addressing the issues raised in this article related to sample sizes, statistical test assumptions, and reporting of effect sizes can improve the evidential value of lighting research.

At the heart of publication bias and the reproducibility crisis is the occurrence of type I errors (false-positive findings) and type II errors (false-negative findings). We use statistical methods in science in an attempt to avoid making claims that in reality may be a type I or type II error. Null hypothesis statistical testing (Hubbard and Ryan 2000) produces a P-value that represents the probability of

obtaining the result (or something more extreme) assuming that there was no real effect or difference between the groups or measures being tested (the “null” hypothesis).

The P-value does not explicitly refer to the probability of the null hypothesis being true, but it does provide a “measure of the strength of evidence against H_0 (the null hypothesis)” (Dorey 2010, p. 2297). Abelson (1995) referred to “discrediting the null hypothesis” (p. 10) based on the P-value from a statistical test. A smaller P-value provides stronger evidence against the null hypothesis.

By convention, in the field of lighting research and most other scientific disciplines, we use a threshold of $P < 0.05$ to indicate a significant or “real” effect, based on proposals by Fisher (1925). However, Fisher himself recognized that this threshold was arbitrary and debate is ongoing about its use. The reproducibility crisis has led some researchers to suggest that a stricter threshold of 0.005 should be used (Benjamin et al. 2017), to reduce the number of type I errors reported in the scientific literature.

ASSESSMENT OF NORMALITY

Confirming whether the data collected within a study sufficiently meets the assumption of a normal distribution should be seen as an informed judgment based on a series of diagnostic checks, rather than a definitive black and white decision. Note also that in regression analyses, it is the residuals (errors between the predicted and actual values) that are required to be normally distributed, not the actual variable values themselves. Normality of residuals may also be adequate for between-subjects ANOVAs and independent t-tests (Williams et al. 2013).

Three types of checks should be carried out to perform a comprehensive assessment of normality: (1) visual inspection of graphical representations of the data; (2) assessment of descriptive statistics; and (3) statistical tests of deviation from a normal distribution. These methods are illustrated using two sets of simulated data, representing normal and nonnormal distributions. The normally distributed data have been generated using the “rnorm” function within the R software package (Version 3.4.0, R Core Team 2017), with the parameters of sample size = 100, mean = 5, standard deviation = 1.5. The nonnormal data are based on a positively skewed exGaussian distribution. This type of distribution is frequently found in reaction time data (Palmer et al. 2011), and reaction times are commonly used as a response measure in lighting research (e.g., Cengiz et al. 2015; Fotios et al. 2017; He et al. 1997).

REPORTING OF EFFECT SIZES

When conducting research, we are generally interested in discovering whether our variables of interest have some effect on what we are studying. This effect may relate to a difference between groups; for example, hazard detection rates under different lighting conditions. Alternatively, it may relate to associations between variables; for example, whether outdoor illuminance levels are associated with perceived safety. If applied appropriately (see Section 3), null hypothesis statistical testing and the P-value produced can provide evidence toward an effect being present (or at least that no effect, the null hypothesis, is implausible). As well as knowing whether an effect may be present, we are also interested in how big this effect is—do our variables have a big influence on what we are measuring or only a trivial influence? A range of methods is available to calculate the size of an effect, some of which are listed in Table 4. Measures of effect size often produce a standardized value that allows comparison between studies using different metrics and a consistent

“language” of effect magnitudes. Further information about effect sizes and their calculation is available elsewhere (e.g., Cohen 1988, 1992; Lakens 2013; Sullivan and Feinn 2012).

The size of any effect revealed within a study is a valuable piece of information when results are reported, for three reasons (Lakens 2013). First it provides information about the magnitude of the effect found, allowing its practical importance to be considered. This information cannot be adequately gleaned from only a P-value (Durlak 2009). Second, it can be incorporated into meta-analyses that combine the findings from multiple studies to provide holistic evidence and more definitive conclusions about a research question or area. Third, it can be used in the design of future related research to estimate required samples sizes, through a priori power analyses, as discussed above. However, despite the evidential and scientific value of reporting effect sizes, this is rarely done in lighting research. The review of recent lighting research papers and papers related to spatial brightness (Section 2) showed that only 24% of the 50 studies included in the review reported effect sizes of some kind, with the majority of effect size measures being R^2 values from a linear regression.

SAMPLE SIZE AND POWER

As discussed in previous sections, key goals of any research study are to discover whether an effect exists (which requires appropriate application of statistical tests; see Section 3) and the magnitude of any effect (which requires the calculation and reporting of a measure of effect size; see Section 4).

The sample size used has implications for both of these objectives. Sample size is an essential determinant of the size of the effect that study will be able to reveal. It also contributes to determining the power of the study—the probability that a significant effect will be revealed through statistical testing when a true effect does really exist (i.e., the probability of avoiding a type II error). Increasing the sample size increases the power of a study, thus making it more able to detect an effect of a smaller size, reducing the likelihood that the null hypothesis will be incorrectly accepted.

CONCLUSIONS

Publication bias and the reproducibility crisis are issues that pose a significant risk to the evidential value of research within a number of fields but particularly within lighting research. At the heart of these issues lies the risk of making type I or type II errors. The statistical methods employed in research are designed to reduce these errors, and their role in determining the presence and importance of any effect is critical to the veracity of published research. This article reviewed a sample of general and topic-specific lighting research papers. The review highlighted the relatively small samples used in behavioral lighting research and the lack of power this introduces. The sample sizes used in most lighting studies may only be capable of revealing medium to large effects.

It is important to consider whether an effect of a certain size is of practical significance. Depending on the specific research area and question being investigated, a small effect size may be insufficiently interesting or noteworthy to warrant investigation, and researchers may only be interested in discovering effects equal to or greater than a certain magnitude. With limited research funding and resources available, the size of an effect that is worth detecting is an important consideration when determining the sample size of a study. Whatever size of effect is judged to be sufficiently large to be of interest, it remains important to justify the sample size used. However, the justification of sample sizes, based on anticipated or targeted effect sizes, was virtually nonexistent

within the papers reviewed here.

One possible reason for this absence of sample size justification is that the practice of reporting effect sizes in lighting research papers is not commonplace and therefore it may be difficult to estimate anticipated effect sizes with any confidence. Only 24% of reviewed papers reported any kind of effect size measure. The American Psychological Association Task Force on Statistical Inference (Wilkinson 1999) states that: "... reporting and interpreting effect sizes in the context of previously reported effects is essential to good research" (p. 599). Increased reporting of effect sizes should be encouraged within lighting research, as should detailed, accurate, and appropriate statistical analysis and reporting. This can help reduce the promotion of unsupported findings within lighting research literature.

CORRELATIONAL ANALYSIS: CORRELATION [PRODUCT MOMENT]

Are stock prices related to the price of gold? Is unemployment related to inflation? Is the amount of money spent on research and development related to a company's net worth? Correlation can answer these questions, and there is no statistical technique more useful or more abused than correlation. Correlation is a statistical method that determines the degree of relationship between two different variables. It is also known as a "bivariate" statistic, with bi- meaning two and variate indicating variable or variance.

The two variables are usually a pair of scores for a person or object. The relationship between any two variables can vary from strong to weak or none. When a relationship is strong, this means that knowing a person's or object's score on one variable helps to predict their score on the second variable.

In other words, if a person has a high score of variable A (compared to all the other peoples' scores on A, then they are likely to have a high score on variable B (compared to the other peoples' scores on B). The latter would be considered a strong positive correlation.

A correlation coefficient that is close to $r = 0.00$ (note that the typical correlation coefficient is reported to two decimal places) means knowing a person's score on one variable tells you nothing about their score on the other variable. For example, there might be a zero correlation between the number of letters in a person's last name and the number of miles they drive per day. If you know the number of letters in a last name, it tells you nothing about how many miles they drive per day. There is no relationship between the two variables; therefore, there is a zero correlation. It is also important to note that there are no hard rules about labeling the size of a correlation coefficient. Statisticians generally do not get excited about a correlation until it is greater than $r = 0.30$ or less than $r = -0.30$.

The correlational statistical technique usually accompanies correlational designs. In a correlational design, the experimenter typically has little or no control over the variables to be studied. The variables may be statistically analyzed long after they were initially produced or measured. Such data is called archival. The experimenter no longer has any experimental power to control the gathering of the data.

The data has already been gathered, and the experimenter now has only statistical power in his or her control. Cronbach (1967), an American statistician, stated well the difference between the

experimental and correlational techniques, "... the experimentalist [is] an expert puppeteer, able to keep untangled the strands to half- a-dozen independent variables. The correlational psychologist is a mere observer of a play where Nature pulls a thousand strings."

CORRELATION: USE AND ABUSE

The crux of the nature and the problem with correlation is that, just because two variables are correlated, it does not mean that one variable caused the other. We mentioned earlier of a governor who wanted to supply every parent of a newborn child in his state with a classical CD or tape in order to boost the child's IQ.

The governor supported his decision by citing studies, which have shown a positive relationship between listening to classical music and intelligence. In fact, the controversy has grown to the point where it is referred to as the Mozart Effect. The governor is making at least two false assumptions. First, he is assuming a causal relationship between classical music and intelligence, that is, classical music causes intelligence to rise. However, the technique of correlation does not allow the implication of causation.

A WARNING:

Correlation Does Not Imply Causation A major caution must be reiterated. Correlation does not imply causation. Because there is a strong positive or strong negative correlation between two variables, this does not mean that one variable is caused by the other variable. As noted previously, many statisticians claim that a strong correlation never implies a cause-effect relationship between two variables.

Yet, there are daily published abuses of the correlational design and statistical technique, not only in newspapers but major scientific journals! A sampling of these misinterpretations follows:

1. Marijuana use and heroin use are positively correlated. Some drug opponents note that heroin use is frequently correlated with marijuana use. Therefore, they reason that stopping marijuana use will stop the use of heroin. Clear-thinking statisticians note that even
 2. a higher correlation is obtained between the drinking of milk in childhood and later adult heroin use. Thus, it is just as absurd to think that if early milk use is banned, subsequent heroin use will be curbed, as it is to suppose that banning marijuana will stop heroin abuse.
 3. Milk use is positively correlated to cancer rates. While this is not a popular finding within the milk industry, there is a moderately positive correlation with drinking milk and getting cancer (Paulos, 1990). Could drinking milk cause cancer? Probably not. However, milk consumption is greater in wealthier countries. In wealthier countries people live longer. Greater longevity means people live long enough to eventually get some type of cancer. Thus, milk and cancer are correlated but drinking milk does not cause cancer (nor does getting cancer cause one to drink more milk).
 4. Weekly church attendance is negatively correlated with drug abuse. A recent study demonstrated that adolescents who attended church weekly were much less likely to abuse illegal drugs or alcohol. Does weekly church attendance cause a decrease in drug abuse? If the Federal Government passed a law for mandatory church attendance, would there be a decrease in drug abuse? Probably not, and there might even be an increase in drug abuse. This study is another example of the abuse of the interpretation of the correlational design and statistical analysis.
4. Lead Levels are positively correlated to antisocial behavior.

A 1996 correlational study (Needleman et al.) examined the relationship of lead levels in the bones of 301 children and found that higher levels of lead were associated with higher rates of antisocial

behavior. "This is the first rigorous study to demonstrate a significant association between lead and antisocial behavior," said one environmental health professor about the study. While the studies authors may have been very excited, the study is still correlational in design and analysis, thus, implications of causation should have been avoided. Perhaps antisocial children have a unique metabolic chemistry such that their bodies do not metabolize lead like normal children. Perhaps lead is not a cause of antisocial behavior but the result of being antisocial.

Therefore, the reduction of lead exposure in early childhood may not reduce antisocial behavior at all. Also, note that there was a statistically "significant" relationship. As you will learn later in this chapter, with large samples (like 301 children in this study) even very weak relationships can be statistically significant with correlational techniques.

Correlation is a statistical technique that can show whether and how strongly pairs of variables are related. For example, height and weight are related; taller people tend to be heavier than shorter people.

The relationship isn't perfect. People of the same height vary in weight, and you can easily think of two people you know where the shorter one is heavier than the taller one. Nonetheless, the average weight of people 5'5" is less than the average weight of people 5'6", and their average weight is less than that of people 5'7", etc. Correlation can tell you just how much of the variation in peoples' weights is related to their heights.

Although this correlation is fairly obvious your data may contain unsuspected correlations. You may also suspect there are correlations, but don't know which are the strongest. An intelligent correlation analysis can lead to a greater understanding of your data.

TECHNIQUES IN DETERMINING CORRELATION

There are several different correlation techniques. The Survey System's optional **Statistics Module** includes the most common type, called the Pearson or product-moment correlation. The module also includes a variation on this type called partial correlation. The latter is useful when you want to look at the relationship between two variables while removing the effect of one or two other variables.

Like all statistical techniques, correlation is only appropriate for certain kinds of data. **Correlation works for quantifiable data** in which numbers are meaningful, usually quantities of some sort. It cannot be used for purely categorical data, such as gender, brands purchased, or favorite color.

RATING SCALES

Rating scales are a controversial middle case. The numbers in rating scales have meaning, but that meaning isn't very precise. They are not like quantities. With a quantity (such as dollars), the difference between 1 and 2 is exactly the same as between 2 and 3. With a rating scale, that isn't really the case. You can be sure that your respondents think a rating of 2 is between a rating of 1 and a rating of 3, but you cannot be sure they think it is exactly halfway between. This is especially true if you labeled the mid-points of your scale (you cannot assume "good" is exactly half way between "excellent" and "fair").

Most statisticians say you cannot use correlations with rating scales, because the mathematics of the technique assume the differences between numbers are exactly equal. Nevertheless, many

survey researchers do use correlations with rating scales, because the results usually reflect the real world. Our own position is that you can use correlations with rating scales, but you should do so with care. When working with quantities, correlations provide precise measurements. When working with rating scales, correlations provide general indications.

CORRELATION COEFFICIENT

The main result of a correlation is called the **correlation coefficient** (or "r"). It ranges from -1.0 to +1.0. The closer r is to +1 or -1, the more closely the two variables are related.

If r is close to 0, it means there is no relationship between the variables. If r is positive, it means that as one variable gets larger the other gets larger. If r is negative it means that as one gets larger, the other gets smaller (often called an "inverse" correlation).

While correlation coefficients are normally reported as $r =$ (a value between -1 and +1), squaring them makes them easier to understand. The square of the coefficient (or r square) is equal to the percent of the variation in one variable that is related to the variation in the other. After squaring r, ignore the decimal point. An r of .5 means 25% of the variation is related (.5 squared = .25). An r value of .7 means 49% of the variance is related (.7 squared = .49).

A correlation report can also show a second result of each test - statistical significance. In this case, the significance level will tell you how likely it is that the correlations reported may be due to chance in the form of random sampling error. If you are working with small sample sizes, choose a report format that includes the significance level. This format also reports the sample size.

A key thing to remember when working with correlations is never to assume a correlation means that a change in one variable causes a change in another. Sales of personal computers and athletic shoes have both risen strongly over the years and there is a high correlation between them, but you cannot assume that buying computers causes people to buy athletic shoes (or vice versa).

The second caveat is that the Pearson correlation technique works best with linear relationships: as one variable gets larger, the other gets larger (or smaller) in direct proportion. It does not work well with curvilinear relationships (in which the relationship does not follow a straight line). An example of a **curvilinear relationship** is age and health care. They are related, but the relationship doesn't follow a straight line. Young children and older people both tend to use much more health care than teenagers or young adults. Multiple regression (also included in the **Statistics Module**) can be used to examine curvilinear relationships, but it is beyond the scope of this article.

CORRELATIONAL ANALYSIS: CORRELATION [PRODUCT MOMENT OF PSYCHOLOGY]

An outlier (in correlation analysis) is a data point that does not fit the general trend of your data, but would appear to be a wayward (extreme) value and not what you would expect compared to the rest of your data points. You can detect outliers in a similar way to how you detect a linear relationship, by simply plotting the two variables against each other on a graph and visually inspecting the graph for wayward (extreme) points. You can then either remove or manipulate that particular point as long as you can justify why you did so (there are far more robust methods for detecting outliers in regression analysis). Alternatively, if you cannot justify removing the data point(s), you can run a nonparametric test such as Spearman's rank-order correlation or Kendall's Tau Correlation instead, which are much less sensitive to outliers. This might be your best approach if you cannot justify

removing the outlier. The diagram below indicates what a potential outlier might look like: Outliers can have a very large effect on the line of best fit and the Pearson correlation coefficient, which can lead to very different conclusions regarding your data. This point is most easily illustrated by studying scatterplots of a linear relationship with an outlier included and after its removal, with respect to both the line of best fit and the correlation coefficient. This is illustrated in the diagram below:

The present hypothesis can be stated more specifically as - "The scores of School Environment (SE) test & the scores of Reading Comprehension (RC) test of the students will show the positive correlation" On the basis of researches done on the effect of SE & RC in English, it has been evident that better the schools and their academic climate with better facilities, the better the scholastic achievement in the students.

The related findings have already been shown in the previous chapter. On the basis of these research evidences, the present directional hypothesis has been framed. With the view to putting this hypothesis to test, Pearson's Product Moment correlation (r) between the scores of SE & the scores of RC in English of the students have been computed.

RESULTS OF DIFFERENTIAL STUDIES

The hypotheses hereafter are pertaining to see the differences of the means of the variables and the interactional effects on the dependent variables of the varied independent variables. Before analysing and testing these hypotheses it was desirable to see the variability of the values found for the dependent variable from the sample taken. To apply ANOVA for the (2x2x2) factorial design the data were tested for homogeneity of the variance by employing Kolmogorov-Smirnov Test of Goodness of Fit for the homogeneity of variance.

As per the above table the value of 'D' is less than 0.438 which shows the significance limit at .05 level. This clearly shows that the value of 'D' does not show significance which indicate that there existed homogeneity of variance ensuring the application of ANOVA and other differential hypotheses.

READING COMPREHENSION IN ENGLISH IN

* n in . HYPOTESIS: DH 6 There is no significant difference in Reading Comprehension in English in Boys & Girls." Stated in other words - "No significant difference exists in the scores of Reading comprehension in English in boys and girls." With the view to test the tenability of the hypothesis, the scores of boys & girls separately in Reading Comprehension in English are analysed on the basis of the 'means' and 't-values.'

On the strength of the above results, we reject our hypothesis OH* and conclude that there exists a significance difference in Reading Comprehension in English in favour of girls.

"Relatively, School Environment would show the maximum main effect and Anxiety would show the minimum main effect on Reading Comprehension in English whereas Socio-Economic Status would fall in between these two main effects."

INTERPRETATION AND DISCUSSION

Results obtained in the present chapter shows the significant association of the independent variables viz., Anxiety, Socio- Economic Status and School Environment with the Reading

Comprehension in English of the students of class XI, taken as a dependent variable in the study. From the three independent variables, taken under the present study, the two variables SES & SE belong to the social variables whereas the Anxiety comes under the psychological variables. Thus, the independent variables cover the socio-psychological variables. The association of all these independent variables on the dependent variable noticed different variations in the findings which needs different and separate interpretations.

INFLUENCE OF PSYCHOLOGICAL VARIABLE ON READING COMPREHENSION IN ENGLISH

Influence of Anxiety on Reading Comprehension in English The results obtained on IH7 indicate that the Anxiety emerged as the potent source variable interacting with Reading Comprehension in English among the students of class XI. The Anxiety indicates a negative correlation with Reading Comprehension in English (CHi) though the correlation is not significant. These facts could be discussed on the strength of the association of the socio- psychological activities with the members and resources of the schools.

RANK-ORDER CORRELATION USING

The Spearman rank-order correlation coefficient (Spearman's correlation, for short) is a nonparametric measure of the strength and direction of association that exists between two variables measured on at least an ordinal scale. It is denoted by the symbol r_s (or the Greek letter ρ , pronounced rho). The test is used for either ordinal variables or for continuous data that has failed the assumptions necessary for conducting the Pearson's product- moment correlation. For example, you could use a Spearman's correlation to understand whether there is an association between exam performance and time spent revising; whether there is an association between depression and length of unemployment; and so forth. If you would like some more background information about this test, which does not include instructions for SPSS Statistics, see our more general statistical guide: Spearman's rank-order correlation. Possible alternative tests to Spearman's correlation are Kendall's tau-b or Goodman and Kruskal's gamma.

This "quick start" guide shows you how to carry out a Spearman's correlation using SPSS Statistics. We show you the main procedure to carry out a Spearman's correlation in the Procedure section. First, we introduce you to the assumptions that you must consider when carrying out a Spearman's correlation.

ASSUMPTIONS

When you choose to analyse your data using Spearman's correlation, part of the process involves checking to make sure that the data you want to analyse can actually be analysed using a Spearman's correlation. You need to do this because it is only appropriate to use a Spearman's correlation if your data "passes" three assumptions that are required for Spearman's correlation to give you a valid result. In practice, checking for these three assumptions just adds a little bit more time to your analysis, requiring you to click of few more buttons in SPSS Statistics when performing your analysis, as well as think a little bit more about your data, but it is not a difficult task. These three assumptions are:

1. **Assumption #1:** Your two variables should be measured on an **ordinal, interval** or **ratio scale**.
Examples of **ordinal**
2. **variables** include Likert scales (e.g., a 7-point scale from "strongly agree" through to "strongly

disagree"), amongst other ways of ranking categories (e.g., a 3-point scale explaining how much a customer liked a product, ranging from "Not very much", to "It is OK", to "Yes, a lot"). Examples of **interval/ratio variables** include revision time (measured in hours), intelligence (measured using IQ score), exam performance (measured from 0 to 100), weight (measured in kg), and so forth. You can learn more about ordinal, interval and ratio variables in our article: Types of Variable.

3. **Assumption #2:** Your two variables represent **paired observations**. For example, imagine that you were interested in the relationship between daily cigarette consumption and amount of exercise performed each week. A single paired observation reflects the score on each variable for a single participant (e.g., the daily cigarette consumption of "Participant 1" and the amount of exercise performed each week by "Participant 1"). With 30 participants in the study, this means that there would be 30 paired observations.
4. **Assumption #3:** There is a **monotonic relationship** between the two variables. A monotonic relationship exists when either the variables increase in value together, or as one variable value increases, the other variable value decreases. Whilst there are a number of ways to check whether a monotonic relationship exists between your two variables, we suggest creating a scatterplot using SPSS Statistics, where you can plot one variable against the other, and then visually inspect the scatterplot to check for monotonicity. Your scatterplot may look something like one of the following:

Example

A teacher is interested in whether those who do better at English also do better in maths. To test whether this is the case, the teacher records the scores of her 10 students in their end-of-year examinations for both English and maths. Therefore, one variable records the English scores and the second variable records the maths scores for the 10 pupils.

PARTIAL CORRELATION PSYCHOLOGY

Partial correlation is the measure of association between two variables, while controlling or adjusting the effect of one or more additional variables. Partial correlations can be used in many cases that assess for relationship, like whether or not the sale value of a particular commodity is related to the expenditure on advertising when the effect of price is controlled.

ASSUMPTIONS

Useful in only small models like the models which involve three or four variables. Used in only those models which assume a linear relationship. The data is supposed to be interval in nature.

The residual variables or unmeasured variables are not correlated with any of the variables in the model, except for the one for which these residuals have occurred.

Partial correlation **measures the strength of a relationship between two variables, while controlling for the effect of one or more other variables**. For example, you might want to see if there is a correlation between amount of food eaten and blood pressure, while controlling for weight or amount of exercise. It's possible to control for multiple variables (called control variables or covariates). However, more than one or two is usually not recommended because the more control variables, the less reliable your test.

SEMI-PARTIAL CORRELATION

Semi-partial correlation is almost the same as partial. In fact, many authors use the two terms to mean the same thing. However, others do make the following subtle distinction:

With semi-partial correlation, **the third variable holds constant for either X or Y but not both**; with partial, the third variable holds constant for both X and Y.

For example, the semi partial correlation statistic can tell us the particular part of variance, that a particular independent variable explains. It explains how one specific independent variable affects the dependent variable, while other variables are controlled for to prevent them getting in the way. To find it, calculate the correlation between the dependent variable and the residual of the prediction of one independent variable by the others.

Example

Suppose we use a set of data (from a 2002 paper from Abdi et al.) which lists three variables over six children. Each child was tested for memory span (Y) and speech rate (X_2), and their age was also noted. A correlation statistic was desired which predicts Y (memory span) from X_1 and X_2 (age and speech rate).

Normally, in a situation where X_1 and X_2 were independent random variables, we'd find out how important each variable was by computing a squared coefficient of correlation between X_1 and X_2 and the dependent variable Y. We would know that these squared coefficients of correlation were equal to the square multiple coefficient of correlation. But in a case like ours, X_1 and X_2 are anything but independent. Speech rate is highly dependent on age, and so using the squared coefficient will count the contributions of each variable several times over.

MULTIPLE CORRELATION PSYCHOLOGY

In statistics, regression analysis is a method for explanation of phenomena and prediction of future events. In the regression analysis, a coefficient of correlation r between random variables X and Y is a quantitative index of association between these two variables. In its squared form, as a coefficient of determination r^2 , indicates the amount of variance in the criterion variable Y that is accounted for by the variation in the predictor variable X. In the multiple regression analysis, the set of predictor variables X_1, X_2, \dots is used to explain variability of the criterion variable Y. A multivariate counterpart of the coefficient of determination r^2 is the coefficient of multiple determination, R^2 . The square root of the coefficient of multiple determination is the coefficient of **multiple correlation**.

CONCEPTUALIZATION OF MULTIPLE CORRELATION

An intuitive approach to the multiple regression analysis is to sum the squared correlations between the predictor variables and the criterion variable to obtain an index of the over-all relationship between the predictor variables and the criterion variable. However, such a sum is often greater than one, suggesting that simple summation of the squared coefficients of correlations is not a correct procedure to employ. In fact, a simple summation of squared coefficients of correlations between the predictor variables and the criterion variable is the correct procedure, but only in the special case when the predictor variables are not correlated. If the predictors are related, their inter-correlations must be removed so that only the unique contributions of each predictor toward explanation of the criterion are included.

FUNDAMENTAL EQUATION OF MULTIPLE REGRESSION ANALYSIS

Initially, a matrix of correlations R is computed for all variables involved in the analysis. This matrix can be conceptualized as a supermatrix, consisting of the vector of cross-correlations between the predictor variables and the criterion variable c , its transpose c' and the matrix of intercorrelations between predictor variables R_{xx} . The fundamental equation of the multiple regression analysis is $R^2 = c' R_{xx}^{-1} c$.

The expression on the left side signifies the coefficient of multiple determination (squared coefficient of multiple correlation). The expressions on the right side are the transposed vector of cross-correlations c' , the matrix of inter-correlations R_{xx} to be inverted (cf., matrix inversion), and the vector of cross-correlations, c . The premultiplication of the vector of cross-correlations by its transpose changes the coefficients of correlation into coefficients of determination. The inverted matrix of the inter-correlations removes the redundant variance from the of inter-correlations of the predictor set of variables. These not-redundant cross-correlations are summed to obtain the multiple coefficient of determination R^2 . The square root of this coefficient is the coefficient of multiple correlation R .

Correlation means association - more precisely it is a measure of the extent to which two variables are related. There are three possible results of a correlational study: a positive correlation, a negative correlation, and no correlation.

A **positive correlation** is a relationship between two variables in which both variables move in the same direction. Therefore, when one variable increases as the other variable increases, or one variable decreases while the other decreases. An example of positive correlation would be height and weight. Taller people tend to be heavier.

A **negative correlation** is a relationship between two variables in which an increase in one variable is associated with a decrease in the other. An example of negative correlation would be height above sea level and temperature. As you climb the mountain (increase in height) it gets colder (decrease in temperature).

A **zero correlation** exists when there is no relationship between two variables. For example there is no relationship between the amount of tea drunk and level of intelligence. Scattergrams
A correlation can be expressed visually. This is done by drawing a scattergram (also known as a scatterplot, scatter graph, scatter chart, or scatter diagram).

A scattergram is a graphical display that shows the relationships or associations between two numerical variables (or co-variables), which are represented as points (or dots) for each pair of score.

A scattergraph indicates the strength and direction of the correlation between the co-variables. When you draw a scattergram it doesn't matter which variable goes on the x-axis and which goes on the y-axis.

Remember, in correlations we are always dealing with paired scores, so the values of the 2 variables taken together will be used to make the diagram. Decide which variable goes on each axis and then simply put a cross at the point where the 2 values coincide.

Some uses of Correlations

PREDICTION

- If there is a relationship between two variables, we can make predictions about one from another.

VALIDITY

- Concurrent validity (correlation between a new measure and an established measure).

RELIABILITY

- Test-retest reliability (are measures consistent).
- Inter-rater reliability (are observers consistent).

THEORY VERIFICATION

- Predictive validity.

CORRELATION COEFFICIENTS: DETERMINING CORRELATION STRENGTH

Instead of drawing a scattergram a correlation can be expressed numerically as a coefficient, ranging from -1 to +1. When working with continuous variables, the correlation coefficient to use is Pearson's r .

The correlation coefficient (r) indicates the extent to which the pairs of numbers for these two variables lie on a straight line. Values over zero indicate a positive correlation, while values under zero indicate a negative correlation.

A correlation of -1 indicates a perfect negative correlation, meaning that as one variable goes up, the other goes down. A correlation of $+1$ indicates a perfect positive correlation, meaning that as one variable goes up, the other goes up.

There is no rule for determining what size of correlation is considered strong, moderate or weak. The interpretation of the coefficient depends on the topic of study.

When studying things that are difficult to measure, we should expect the correlation coefficients to be lower (e.g. above 0.4 to be relatively strong). When we are studying things that are more easier to measure, such as socioeconomic status, we expect higher correlations (e.g. above 0.75 to be relatively strong).

In these kinds of studies, we rarely see correlations above 0.6. For this kind of data, we generally consider correlations above 0.4 to be relatively strong; correlations between 0.2 and 0.4 are moderate, and those below 0.2 are considered weak.

When we are studying things that are more easily countable, we expect higher correlations. For example, with demographic data, we we generally consider correlations above 0.75 to be relatively strong; correlations between 0.45 and 0.75 are moderate, and those below 0.45 are considered weak.

Correlation vs Causation

Causation means that one variable (often called the predictor variable or independent variable) causes the other (often called the outcome variable or dependent variable).

Experiments can be conducted to establish causation. An experiment isolates and manipulates the independent variable to observe its effect on the dependent variable, and controls the environment

in order that extraneous variables may be eliminated.

A correlation between variables, however, does not automatically mean that the change in one variable is the cause of the change in the values of the other variable. A correlation only shows if there is a relationship between variables.

Correlation does not always prove causation as a third variable may be involved. For example, being a patient in hospital is correlated with dying, but this does not mean that one event causes the other, as another third variable might be involved (such as diet, level of exercise).

Strengths of Correlations

1. Correlation allows the researcher to investigate naturally occurring variables that maybe unethical or impractical to test experimentally. For example, it would be unethical to conduct an experiment on whether smoking causes lung cancer.
2. Correlation allows the researcher to clearly and easily see if there is a relationship between variables. This can then be displayed in a graphical form

LIMITATIONS OF CORRELATIONS

1. Correlation is not and cannot be taken to imply causation. Even if there is a very strong association between two variables we cannot assume that one causes the other.

For example suppose we found a positive correlation between watching violence on T.V. and violent behavior in adolescence. It could be that the cause of both these is a third (extraneous) variable - say for example, growing up in a violent home - and that both the watching of T.V. and the violent behavior are the outcome of this.

2. Correlation does not allow us to go beyond the data that is given. For example suppose it was found that there was an association between time spent on homework (1/2 hour to 3 hours) and number of G.C.S.E. passes (1 to 6). It would not be legitimate to infer from this that spending 6 hours on homework would be likely to generate 12 G.C.S.E. passes.

SPECIAL CORRELATION METHODS: BISERIAL, POINT BISERIAL, TETRACHORIC, PHI COEFFICIENT

This procedure calculates estimates, confidence intervals, and hypothesis tests for both the point-biserial and the biserial correlations. The point-biserial correlation is a special case of the product-moment correlation in which one variable is continuous and the other variable is binary (dichotomous).

The categories of the binary variable do not have a natural ordering. For example, the binary variable gender does not have a natural ordering. That is, it does not matter whether the males are coded as a zero or a one. Such variables are often referred to as nominal binary variables.

It is assumed that the continuous data within each group created by the binary variable are normally distributed with equal variances and possibly different means. The biserial correlation has a different interpretation which is may be explained with an example. Suppose you have a set of bivariate data from the bivariate normal distribution.

The two variables have a correlation sometimes called the product- moment correlation coefficient.

Now suppose one of the variables is dichotomized by creating a binary variable that is zero if the original variable is less than a certain variable and one otherwise.

The biserial correlation is an estimate of the original product-moment correlation constructed from the point-biserial correlation. For example, you may want to calculate the correlation between IQ and the score on a certain test, but the only measurement available with whether the test was passed or failed. You could then use the biserial correlation to estimate the more meaningful product-moment correlation.

POINT-BISERIAL CORRELATION

Suppose you want to find the correlation between a continuous random variable Y and a binary random variable X which takes the values zero and one. Assume that n paired observations (Y_k, X_k) , k are available. If the common product-moment correlation r is calculated from these data, the resulting correlation is called the point-biserial correlation.

BISERIAL CORRELATION

Suppose you want to find the correlation between a pair of bivariate normal random variables when one has been dichotomized. Sheskin (2011) states that the biserial correlation can be calculated from the point-biserial.

ONE OR MORE CONTINUOUS VARIABLES AND A BINARY VARIABLE

The continuous data is in one variable (column) and the binary group identification is in another variable. Each row contains the values for one subject. If multiple continuous variables are selected, a separate analysis is made for each. If the binary variable has more than two levels (unique values), a separate analysis is made for each pair.

POINT-BISERIAL AND BISERIAL CORRELATIONS

This report shows the point-biserial correlation and associated confidence interval and hypothesis test on the first row. It shows the biserial correlation and associated confidence interval and hypothesis test on the second row.

TYPE

The type of correlation coefficient shown on this row. Note that, although the names point-biserial and biserial sound similar, these are two different correlations that come from different models.

CORRELATION

The computed values of the point-biserial correlation and biserial correlation. Note that since the assignment of the zero and one to the two binary variable categories is arbitrary, the sign of the point-biserial correlation can be ignored. This is not true of the biserial correlation.

Note that the point-biserial correlation demands that the variances are equal but is robust to mild non-normality. On the other hand, the biserial correlation is robust to unequal variances, but demands that the data are normal. This report presents the usual descriptive statistics. This report displays a brief summary of a linear regression of Y on X .

RANK ORDER CORRELATIONS

We have learned about Pearson's correlation in earlier unit. The Pearson's correlation is calculated

on continuous variables. Pearson's correlation is not advised under two circumstances: one, when the data are in the form of ranks and two, when the assumptions of Pearson's correlation are not followed by the data. In this condition, the application of Pearson's correlations is doubtful.

Under such circumstances, rank-order correlations constitute one of the important options. The ordinal scale data is called as rank-order data. Now let us look at these two aspects, rank-order and assumption of Pearson's correlations, in greater detail.

Rank-Order Data When the data is in rank-order format, then the correlation that can be computed is called as rank order correlations. The rank-order data present the ranks of the individuals or subjects. The observations are already in the rank order or the rank order is assigned to them. Marks obtained in the unit test will constitute a continuous data. But if only the merit list of the students is displayed then the data is called as rank order data. If the data is in terms of ranks, then Pearson's correlation need not be done. Spearman's rho constitutes a good option.

ASSUMPTIONS UNDERLYING PEARSON'S CORRELATION NOT SATISFIED

The statistical significance testing of the Pearson's correlation requires some assumptions about the distributional properties of the variables. We have already delineated these assumptions in the earlier unit. When the assumptions are not followed by the data, then employing the Pearson's correlation is problematic. It should be noted that small violations of the assumptions does not influence the distributional properties and associated probability judgments. Hence it is called as a robust statistics. However, when the assumptions are seriously violated, then application of Pearson's correlation should no longer be considered as a choice. Under such circumstances, Rank order correlations should be preferred over Pearson's correlation.

It needs to be noted that rank-order correlations are applicable under the circumstances when the relationship between two variables is not linear but still it is a monotonic relationship. The monotonic relationship is one where values in the data are consistently increasing and never decreasing or consistently decreasing and never increasing. Hence, monotonic relationship implies that as X increases Y consistently increase or as X increases Y consistently decrease. In such cases, rank-order is a better option than Pearson's correlation coefficient. However, some caution should be observed while doing so.

A careful scrutiny of Figure 1 below indicates that, in reality, it is a power function. So actually a relationship between X and Y is not linear but curvilinear power function. So, indeed, curve-fitting is a best approach for such data than using the rank order correlation. The rank-order can be used with this data since the curvilinear relationship shown in figure 1 is also a monotonic relationship. It must be kept in mind that all curvilinear relationships would not be monotonic relationships.

THE PHI-COEFFICIENT, THE TETRACHORIC CORRELATION COEFFICIENT, AND THE PEARSON-YULE DEBATE

The phi-coefficient and the tetrachoric correlation coefficient are two measures of association for dichotomous variables. The association between variables is of fundamental interest in most scientific disciplines, and dichotomous variables occur in a wide range of applications.

Consequently, measures of association for dichotomous variables are useful in many situations. For example in medicine, many phenomena can only be reliably measured in terms of dichotomous

variables. Another example is psychology, where many conditions only can be reliably measured in terms of, for instance, diagnosed or not diagnosed. Data is often presented in the form of 2×2 contingency tables.

A historically prominent example is Pearson's smallpox recovery data, see Table 1, studying possible association between vaccination against, and recovery from, smallpox infection. Another interesting data set is Pearson's diphtheria recovery data, Table 2, studying possible association between antitoxin serum treatment and recovery from diphtheria. Measures of association for dichotomous variables is an area that has been studied from the very infancy of modern statistics. One of the first scholars to treat the subject was Karl Pearson, one of the fathers of modern statistics.

probabilities of the contingency table. The tetrachoric correlation coefficient is then defined as that parameter, which, of course, corresponds to the linear correlation of the bivariate normal distribution. According to Pearson's colleague Burton H. Camp (1933), Pearson considered the tetrachoric correlation coefficient as being one of his most important contributions to the theory of statistics, right besides his system of continuous curves, the chi-square test and his contributions to small sample statistics. However, the tetrachoric correlation coefficient suffered in popularity because of the difficulty in its computation.

While the tetrachoric correlation coefficient is the linear correlation of a so-called underlying bivariate normal distribution, the phi-coefficient is the linear correlation of an underlying bivariate discrete distribution. This measure of association was independently proposed by Boas (1909), Pearson (1900), Yule (1912), and possibly others. The question of whether the underlying bivariate distribution should be considered continuous or discrete is at the core of the so-called Pearson-Yule debate. In the historical context of the Pearson-Yule debate, though, it is important to understand that no one at the time looked upon these two measures of association as the linear correlations of different underlying distributions, the framework in which both were presented in the preceding paragraph. On the contrary, according to Yule (1912) the tetrachoric correlation coefficient is founded upon ideas entirely different from those of which the phi-coefficient is founded upon.

The sentiment is echoed by Pearson & Heron (1913), which even claims that the phi-coefficient is not based on a reasoned theory, while at the same time arguing for the soundness of the tetrachoric correlation coefficient. In fact, the point of view that both measures of association are the linear correlations of underlying distributions is one of the contributions of the present article.

THE PEARSON-YULE DEBATE

George Udny Yule, a former student of Pearson, favored the approach of an inherently discrete underlying distribution. Yule (1912) is a comprehensive review of the area of measures of association for dichotomous variables, as well as a response to Heron (1911), and contains blunt criticism of Pearson's tetrachoric correlation coefficient.

This standpoint Professor Pearson's assumptions are quite inapplicable, and do not lead to the true correlation between the attributes. But this is not, apparently, the standpoint taken by Professor Pearson himself.

THE PHI-COEFFICIENT

The phi-coefficient is the linear correlation between postulated underlying discrete univariate

distributions of X and Y . Formally, let T_X and T_Y be two mappings such that $T_X(X(\Omega))$ and $T_Y(Y(\Omega))$ are both subsets of R . For example, T_X could be $a + b1_{\{\text{pos.}\}}$, for some real constants a and b , 1 being the indicator function. Furthermore, denote $T_X(\text{pos.}) = \alpha$, $T_X(\text{neg.}) = \beta$, $T_Y(\text{pos.}) = \gamma$ and $T_Y(\text{neg.}) = \delta$. The technical conditions $\alpha = \beta$, $\gamma = \delta$ and $\text{sign}(\alpha - \beta) = \text{sign}(\gamma - \delta)$ are also needed. The phi-coefficient is then defined as the linear correlation of T_X and T_Y , i.e. $\rho_{\phi} = \text{Corr}(T_X, T_Y)$.

COROLLARY 2.

Except for its sign, the phi-coefficient does not depend on the choice of mappings T_X and T_Y . An implication of Corollary 2 is that proliferation of phi-coefficients is avoided, and the amount of subjectivism inserted into the phi-coefficient construction is limited. Also, the phi-coefficient can be considered scale and origin free. The only assumption needed is that it is possible to, without loss (or distortion) of information, map the values of X and Y into R . The assumption is formalized as follows. Assumption A1. The values of the dichotomous variables can without loss of information be mapped into the real ordered field, R .

One possible interpretation of Assumption A1 is that the dichotomous variables X and Y are inherently discrete and that both values of X and Y , respectively, represent the same thing but of different magnitudes. Note that Assumption A1 implies an order relation between the values of X and Y , respectively, i.e. that the variables are ordinal. Assumption A1 is not appropriate if a dichotomous variable is strictly nominal, e.g. if the values are Male and Female, Cross and Self-Fertilization, or Treatment A and Treatment B. Pearson & Heron (1913) call these cases Mendelian.

THE TETRACHORIC CORRELATION

coefficient. The tetrachoric correlation coefficient is the linear correlation between postulated underlying normal distributions of X and Y . The 2×2 contingency table is thought of as a double dichotomy of a bivariate normal distribution. One can visualize the bell-shaped bivariate normal density function standing atop the contingency table. Since the dichotomous variables are both scale and origin free, and the family of normal distributions is closed under linear transformations, the normal distribution can without loss of generality be set to standard normal.

Changing the parameter value of the bivariate standard normal distribution will change the shape of the bell-shaped bivariate normal density function, and hence the probability masses over the four rectangles that results from the double dichotomization.

The parameter value of the bivariate standard normal distribution equals, of course, the linear correlation of the postulated joint normal distribution. Since the contingency table is fully determined by the marginal probabilities and one joint probability, it suffices to choose parameter value such that, under given marginal probabilities, one joint probability equals the corresponding volume. Conventionally, that joint probability is chosen to be the probability p_a , corresponding to positive values of both dichotomous variables. Since a volume of a normal distribution cannot be expressed in closed form, computing the tetrachoric correlation coefficient amounts to solving an integral equation.

There are several theories why Pearson (1900) for the purpose of the above definition chose the parametric family of bivariate normal distributions. At the time, the normal distribution was prevalent, and according to Pearson & Heron (1913) there were no other bivariate distributions that

up until the time had been discussed effectively. Furthermore, Pearson (1900) was primarily interested in applications in the fields of evolution and natural selection, which is evident from the article's title, and such variables were generally assumed to be normally distributed.

Pearson's friend and mentor Francis Galton even had a philosophical argument why all variables in nature ought to be normally distributed. Also, the parameter of the parametric family of bivariate normal distributions happens to be a measure of association, and this in combination with other nice properties makes the choice of the bivariate normal distribution most convenient. Ekström (2009) has generalized the definition so that a large class of parametric families of bivariate distributions can be assumed.

In particular, Assumption A2 implies that the values of the dichotomous variables have an ordering, i.e. that the variables are ordinal. In many of the examples of Pearson (1900), the dichotomous variables are actual dichotomizations of continuous variables such as the stature of fathers and sons.

In practice, however, such variables are most often measured with greater precision than two categories, and for dichotomous variables which cannot be measured with greater precision it is in general not easy to make an assertion about the distribution of a postulated underlying continuous variable. If a tetrachoric correlation coefficient exists and is unique for every contingency table, then the tetrachoric correlation coefficient is said to be well defined. The following theorem is of theoretical and practical importance, and has not been found in the literature.

REGRESSION: SIMPLE LINEAR REGRESSION PSYCHOLOGY

Like correlation, regression also allows you to investigate the relationship between variables. But while correlation is just used to describe this relationship, regression allows you to take things one step further; from description to prediction. Regression allows you to model the relationship between variables, which enables you to make predictions about what one variable will do based on another. Or more specifically, it enables you to predict the value of one variable based on the value of another. The variable you want to predict is called the outcome variable (or DV)

- The variable you will base your prediction on is called the predictor variable
- (or IV) For this tutorial, we will use an example based on a fictional study investigating the people's recovery following brain damage. After a brain injury, plasticity enables different regions of the brain to compensate for the regions that have been affected; taking over some of the functions that the damaged regions were initially responsible for. However, the extent to which this occurs is dependent on a number of factors. For example, we know that people are much more likely to recover cognitive function if they experience the brain injury when they are young (all other things being equal, such as the severity of the injury, brain location and so on). So, if we know that brain injury recovery might be related to age, can we predict the degree of brain function someone might expect to recover, based on the age they experienced the injury? This is what we will explore in this tutorial. As with ANOVA, there are different types of regression. But this tutorial will focus on regression in its simplest form: simple linear regression. For simple linear regression, you only have two variables that you are interested in: the predictor (IV) and outcome (DV) variable. In this example our two variables are:

Age – the predictor variable: Proportion of brain function recovered

the outcome variable: Imagine we carried out a study that measured how much brain function

patients recovered following an accident. We could then input it into SPSS (along with their age) as follows:

The final box is the Coefficients table. While the ANOVA table tells us whether the model is a significant predictor of the outcome variable overall, this table tells us how the individual predictor variables contribute to the model.

This table is most useful in situations where multiple variables have been included as predictors – which is not the case in this example. In this example, given that we only have one predictor variable in our model (Age); and that we know the model is significant, we would expect this table to tell us that Age is a significant predictor of brain function recovery score.

When writing up your results there are certain statistics that you need to report. First, you need to state the proportion of variance that can be explained by your model. This is represented by the statistic R^2 and is a number between 0 and 1. It can either be reported in this format (e.g. $R^2 = .872$) or it can be multiplied by 100 to represent the percentage of variance your model explains (e.g. 87.2%). Second, you need to report whether or not your model was a significant predictor of the outcome variable using the results of the ANOVA. Finally, you need to include information about your predictor variables.

In this case (as there is only one) you need to include your β_1 value and the significance of its contribution to the model. While this isn't so important for simple linear regression, when you have multiple predictors you would need to present this information for each variable you have. You might also want to include your final model here. So, in this case we might say something like: A simple linear regression was carried out to test if age significantly predicted brain function recovery .

EXAMPLE OF SIMPLE LINEAR REGRESSION

The table below shows some data from the early days of the Italian clothing company Benetton. Each row in the table shows Benetton's sales for a year and the amount spent on advertising that year. In this case, our outcome of interest is sales—it is what we want to predict.

If we use advertising as the predictor variable, linear regression estimates that **Sales = 168 + 23**

Advertising.

That is, if advertising expenditure is increased by one million Euro, then sales will be expected to increase by 23 million Euros, and if there was no advertising we would expect sales of 168 million Euros.

EXAMPLE OF MULTIPLE LINEAR REGRESSION

Linear regression with a single predictor variable is known as simple regression. In real-world applications, there is typically more than one predictor variable. Such regressions are called multiple regression. For more information, check out this post on why you should not use multiple linear regression for Key Driver Analysis with example data for multiple linear regression examples.

Returning to the Benetton example, we can include **year** variable in the regression, which gives the result that **Sales = 323 + 14 Advertising + 47 Year**.

CHECKING THE QUALITY OF REGRESSION MODELS

Estimating a regression is a relatively simple thing. The hard bit of using regression is avoiding using a regression that is wrong. Below are standard regression diagnostics for the earlier regression. The column labelled **Estimate** shows the values used in the equations before. These estimates are also known as the coefficients and parameters. The **Standard** quantifies the uncertainty of the estimates.

MULTIPLE REGRESSION OF PSYCHOLOGY

Multiple regression generally explains the relationship between multiple independent or predictor variables and one dependent or criterion variable. A dependent variable is modeled as a function of several independent variables with corresponding coefficients, along with the constant term. Multiple regression requires two or more predictor variables, and this is why it is called multiple regression.

The multiple regression equation explained above takes the following form:

$y = b_1x_1 + b_2x_2 + \dots + b_nx_n + c$. Here, b_i 's ($i=1,2,\dots,n$) are the regression coefficients, which represent the value at which the criterion variable changes when the predictor variable changes.

As an example, let's say that the test score of a student in an exam will be dependent on various factors like his focus while attending the class, his intake of food before the exam and the amount of sleep he gets before the exam. Using this test one can estimate the appropriate relationship among these factors.

Multiple regression in SPSS is done by selecting "analyze" from the menu. Then, from analyze, select "regression," and from regression select "linear."

ASSUMPTIONS:

1. There should be proper specification of the model in multiple regression. This means that only relevant variables must be included in the model and the model should be reliable.
2. Linearity must be assumed; the model should be linear in nature.
3. Normality must be assumed in multiple regression. This means that in multiple regression, variables must have normal distribution.
4. Homoscedasticity must be assumed; the variance is constant across all levels of the predicted variable.

There are certain terminologies that help in understanding multiple regression. These terminologies are as follows:

1. **The beta value** is used in measuring how effectively the predictor variable influences the criterion variable, it is measured in terms of standard deviation.
2. **R**, is the measure of association between the observed value and the predicted value of the criterion variable. R Square, or R^2 , is the square of the measure of association which indicates the percent of overlap between the predictor variables and the criterion variable. Adjusted R^2 is an estimate of the R^2 if you used this model with a new data set.

The regression model was conceptualized in the late nineteenth century by Sir Francis Galton, who was studying how characteristics are inherited from one generation to the next (e.g., Stanton, 2001; Stigler, 1997). Galton's goal was to model and predict the characteristics of offspring based on the

characteristics of their parents.

The term 'regression' came from the observation that extreme values (or outliers) in one generation produced offspring that were closer to the mean in the next generation; hence, 'regression to the mean' occurred (the original terminology used was regression to 'mediocrity'). Galton also recognized that previous generations (older than the parents) could influence the characteristics of the offspring as well, and this led him to conceptualize the multiple-regression model.

The residuals provide a measure of the goodness or accuracy of the model's predictions, as smaller (larger) residuals indicate more accurate (inaccurate) predictions. The residuals, ϵ_i , are sometimes labeled 'errors', but we find this terminology potentially misleading since it connotes that (some of) the variables are subject to measurement error.

In fact, the statistical model assumes implicitly that all measurements are perfectly reliable, and the residuals are due to sampling variance, reflecting the fact that the relationships between Y and the various Xs are probabilistic in nature (e.g., in Galton's studies, not all boys born to fathers who are 180 cm tall, and mothers who are 164 cm tall, have the same height). The more complex structural equation models (SEM) combine the statistical MR model with measurement models that incorporate the imperfection of the measurement procedures for all the variables involved.

These models are beyond the scope of this chapter, but are covered in Part V (e.g., Chapter 21) of this book. This chapter covers the wide variety of MR applications in behavioral research. Specifically, we will discuss the measurement, sampling and statistical assumptions of the model, estimation of its parameters, interrelation of its various results, and evaluation of its fit. We illustrate the key results with several numerical examples.

Applications of the multiple-regression model The regression model can be used in one of two general ways, referred to by some (e.g., Pedhazur, 1997) as explanation and prediction. The distinction between these approaches is akin to the distinction between confirmatory and exploratory analyses. The explanatory/confirmatory use of the model seeks to confirm (or refute) certain theoretical expectations and predictions derived from a particular model (typically developed independently of the data at hand).

The ultimate goal is to understand the specific process by which the criterion of interest is produced by the (theoretically determined) predictors. The explanatory regression model is used to confirm the predictions of the theory in the context of a properly formulated model, by using standard statistical tools. It can verify that those predictors that are specified by theory are, indeed, significant and others, which are considered irrelevant by the theory, are not. Similarly, it could test whether the predictor that is postulated by the theory to be the most important in predicting Y reproduces by itself the highest amount of variance, produces the most accurate predictions, and so forth. Consider, for example, specific theories related to the process and variables that determine an individual's IQ. Some theories may stress the hereditary nature of IQ and others may highlight the environmental components.

Thus, they would have different predictions about the significance and/or relative importance of various predictors in the model. An explanatory application of the model would estimate the model's parameters (e.g., regression coefficients), proceed to test the significance of the relevant predictors,

and/or compare the quality and accuracy of the predictions of the various theories.

The predictive/exploratory analysis can be also guided, at least in part, by theory but it is more open ended and flexible and, in particular, relies on the data to direct the analysis. Such an analysis seeks to identify the set of predictors that predicts best the outcome, regardless of whether the model is the 'correct' explanatory mechanism by which the outcome is produced. Of course, it is reassuring if the model makes sense theoretically, but this is not a must. For example, to predict IQ one would start with a large set of predictors that are theoretically viable and include the predictors that optimally predict the observed values of IQ in the regression model.

Thus, the decision in this case is data driven and more exploratory in nature than the explanatory approach. While the model selected using a prediction approach should yield highly accurate predictions, the components of the model are not considered to be any more 'correct' than those for other potential predictors that would yield the same prediction accuracy.

To borrow an example from Pedhazur (1997), if one is trying to predict the weather, a purely predictive approach is concerned with the accuracy of the prediction regardless of whether the predictors are the true scientific 'causes' of the observed-weather conditions. The explanatory approach, on the other hand, would require a model that can also provide a scientific explanation of how the predictors produce the observed-weather conditions. Therefore, while the predictive approach may provide accurate predictions of the outcome, the explanatory approach also provides true knowledge about the processes that underlie and actually produce the outcome. THE VARIOUS FORMS OF THE MODEL Measurement level Typically, all the variables (the response and predictors) are assumed to be quantitative in nature; that is, measured on scales that have well defined and meaningful units (interval or higher).

This assumption justifies the typical interpretation of the regression coefficients as conditional slopes – the expected change in the value of the response variable per unit change of the target predictor, conditional on holding the values of the other ($p - 1$) predictors fixed. This assumption is also critical for one of the key properties of the MR model. MR is a compensatory model in the sense that the same response value can be predicted by multiple combinations of the predictors. In particular, high values on some predictors can compensate for low values on others.

DERIVATIVE PREDICTORS

Typically, the p predictors are measured independently from each other by distinct instruments (various scales, different tests, multiple raters, etc.). In some cases, researchers supplement these predictors by additional measures that are derived by specific transformations and/or combinations of the measured variables. For example, polynomial-regression models include successive powers (quadratic, cubic, quartic, etc.) of some of the original predictors, and are designed to capture nonlinear trends in the relationship between the response and the relevant predictors. Interactive-regression models include variables that are derived by multiplying two, or more, of the measured variables (or some simple transformations of these variables) in an attempt to capture the joint (i.e., above and beyond the additive) effects of the target variables. Computationally, these models do not require any special treatment as one can treat the product X_1X_2 or the quadratic term X_2^2 as additional variables, but we mention several subtle interpretational issues.

SAMPLING DESIGNS

The classical regression model assumes that the values of the predictors are 'fixed'; that is, chosen by various design considerations (including, possibly, plain convenience) rather than sampled randomly. Random samples (of equal, or unequal, size) of the response variable are then obtained for each relevant combination of the p predictors.

Thus, the data consist of a (possibly large) collection of distributions of Y , conditional on particular predetermined combinations of X_1, \dots

X_p . The X 's (predictors) are not random variables, and their distributions in the sample are not necessarily expected to match their underlying distributions in the population. Thus, no distributional assumptions are made about the predictors. The unknown parameters to be estimated in the model are the p regression coefficients and the variance of the residuals. Alternatively, in the 'random' design the researcher randomly samples cases from the population of interest, where a 'case' consists of a vector of all p predictors and the response variable.

The former is a fixed design and the latter is a random one. In both cases one would have the same variables and, subject to minor subtle differences, be able to address the same questions (e.g., Sampson, 1974). In general, the results of a fixed design can be generalized only to the values of X included in the study while the results of a random design can be generalized to the entire population of X values that is represented (by a random sample of values) in the study.

FACTOR ANALYSIS: ASSUMPTIONS, METHODS, ROTATION AND INTERPRETATION OF PSYCHOLOGY

Factor Analysis

Factor analysis is a technique that is used to reduce a large number of variables into fewer numbers of factors. This technique extracts maximum common variance from all variables and puts them into a common score. As an index of all variables, we can use this score for further analysis. Factor analysis is part of general linear model (GLM) and this method also assumes several assumptions: there is linear relationship, there is no multicollinearity, it includes relevant variables into analysis, and there is true correlation between variables and factors. Several methods are available, but principal component analysis is used most commonly.

TYPES OF FACTORING:

There are different types of methods used to extract the factor from the data set:

1. **Principal component analysis:** This is the most common method used by researchers. PCA starts extracting the maximum variance and puts them into the first factor. After that, it removes that variance explained by the first factors and then starts extracting maximum variance for the second factor. This process goes to the last factor.
2. **Common factor analysis:** The second most preferred method by researchers, it extracts the common variance and puts them into factors. This method does not include the unique variance of all variables. This method is used in SEM.
3. **Image factoring:** This method is based on correlation matrix. OLS Regression method is used to predict the factor in image factoring.
4. **Maximum likelihood method:** This method also works on correlation metric but it uses maximum likelihood method to factor.

6. **Other methods of factor analysis:** Alfa factoring outweighs least squares. Weight square is another regression based method which is used for factoring.

FACTOR LOADING:

Factor loading is basically the correlation coefficient for the variable and factor. Factor loading shows the variance explained by the variable on that particular factor. In the SEM approach, as a rule of thumb, 0.7 or higher factor loading represents that the factor extracts sufficient variance from that variable. **Eigenvalues:** Eigenvalues is also called characteristic roots. Eigenvalues shows variance explained by that particular factor out of the total variance. From the commonality column, we can know how much variance is explained by the first factor out of the total variance. For example, if our first factor explains 68% variance out of the total, this means that 32% variance will be explained by the other factor.

Factor score: The factor score is also called the component score. This score is of all row and columns, which can be used as an index of all variables and can be used for further analysis. We can standardize this score by multiplying a common term. With this factor score, whatever analysis we will do, we will assume that all variables will behave as factor scores and will move.

Criteria for determining the number of factors: According to the Kaiser Criterion, Eigenvalues is a good criteria for determining a factor. If Eigenvalues is greater than one, we should consider that a factor and if Eigenvalues is less than one, then we should not consider that a factor. According to the variance extraction rule, it should be more than 0.7. If variance is less than 0.7, then we should not consider that a factor.

Rotation method: Rotation method makes it more reliable to understand the output. Eigenvalues do not affect the rotation method, but the rotation method affects the Eigenvalues or percentage of variance extracted. There are a number of rotation methods available: (1) No rotation method, (2) Varimax rotation method, (3) Quartimax rotation method, (4) Direct oblimin rotation method, and (5) Promax rotation method. Each of these can be easily selected in SPSS, and we can compare our variance explained by those particular methods.

ASSUMPTIONS:

1. **No outlier:** Assume that there are no outliers in data.
2. **Adequate sample size:** The case must be greater than the factor.
3. **No perfect multicollinearity:** Factor analysis is an interdependency technique. There should not be perfect multicollinearity between the variables.
4. **Homoscedasticity:** Since factor analysis is a linear function of measured variables, it does not require homoscedasticity between the variables.
5. **Linearity:** Factor analysis is also based on linearity assumption. Non-linear variables can also be used. After transfer, however, it changes into linear variable.
6. **Interval Data:** Interval data are assumed.

KEY CONCEPTS AND TERMS:

Exploratory factor analysis: Assumes that any indicator or variable may be associated with any factor. This is the most common factor analysis used by researchers and it is not based on any prior theory.

Confirmatory factor analysis (CFA): Used to determine the factor and factor loading of measured variables, and to confirm what is expected on the basis or pre-established theory. CFA assumes that each factor is associated with a specified subset of measured variables. It commonly uses two approaches:

1. **The traditional method:** Traditional factor method is based on principal factor analysis method rather than common factor analysis. Traditional method allows the researcher to know more about insight factor loading.
2. **The SEM approach:** CFA is an alternative approach of factor analysis which can be done in SEM. In SEM, we will remove all straight arrows from the latent variable, and add only that arrow which has to observe the variable representing the covariance between every pair of latents. We will also leave the straight arrows error free and disturbance terms to their respective variables. If standardized error term in SEM is less than the absolute value two, then it is assumed good for that factor, and if it is more than two, it means that there is still some unexplained variance which can be explained by factor. Chi-square and a number of other goodness-of-fit indexes are used to test how well the model fits.

EXPERIMENTAL DESIGNS: ANOVA [ONE-WAY, FACTORIAL], RANDOMIZED BLOCK DESIGNS,

Design of experiment means how to design an experiment in the sense that how the observations or measurements should be obtained to answer a query in a valid, efficient and economical way. The designing of the experiment and the analysis of obtained data are inseparable. If the experiment is designed properly keeping in mind the question, then the data generated is valid and proper analysis of data provides the valid statistical inferences. If the experiment is not well designed, the validity of the statistical inferences is questionable and may be invalid. It is important to understand first the basic terminologies used in the experimental design.

EXPERIMENTAL UNIT:

For conducting an experiment, the experimental material is divided into smaller parts and each part is referred to as an experimental unit. The experimental unit is randomly assigned to treatment is the experimental unit. The phrase “randomly assigned” is very important in this definition.

EXPERIMENT:

A way of getting an answer to a question which the experimenter wants to know.

Treatment Different objects or procedures which are to be compared in an experiment are called treatments.

SAMPLING UNIT:

The object that is measured in an experiment is called the sampling unit. This may be different from the experimental unit.

FACTOR:

A factor is a variable defining a categorization. A factor can be fixed or random in nature. A factor is termed as a fixed factor if all the levels of interest are included in the experiment.

A factor is termed as a random factor if all the levels of interest are not included in the experiment and those that are can be considered to be randomly chosen from all the levels of interest.

Design of experiment: One of the main objectives of designing an experiment is how to verify the hypothesis in an efficient and economical way. In the context of the null hypothesis of equality of several means of normal populations having the same variances, the analysis of variance technique can be used. Note that such techniques are based on certain statistical assumptions.

If these assumptions are violated, the outcome of the test of a hypothesis then may also be faulty and the analysis of data may be meaningless. So the main question is how to obtain the data such that the assumptions are met and the data is readily available for the application of tools like analysis of variance. The designing of such a mechanism to obtain such data is achieved by the design of the experiment.

After obtaining the sufficient experimental unit, the treatments are allocated to the experimental units in a random fashion. Design of experiment provides a method by which the treatments are placed at random on the experimental units in such a way that the responses are estimated with the utmost precision possible.

An **ANOVA** test is a way to find out if survey or experiment results are significant. In other words, they help you to figure out if you need to reject the null hypothesis or accept the alternate hypothesis. Basically, **you're testing groups to see if there's a difference between them**. Examples of when you might want to test different groups:

- A group of psychiatric patients are trying three different therapies: counseling, medication and biofeedback. You want to see if one therapy is better than the others.
- A manufacturer has two different processes to make light bulbs. They want to know if one process is better than the other.
- Students from different colleges take the same exam. You want to see if one college outperforms the other.

What Does "One-Way" or "Two-Way Mean?"

One-way or **two-way** refers to the number of independent variables (IVs) in your Analysis of Variance test.

- One-way has one independent variable (with 2 levels). For example: brand of cereal,
- Two-way has two independent variables (it can have multiple levels). For example: brand of cereal, calories.

What are "Groups" or "Levels"?

Groups or levels are different groups within the same independent variable. In the above example, your levels for "brand of cereal" might be Lucky Charms, Raisin Bran, Cornflakes – a total of three levels. Your levels for "Calories" might be: sweetened, unsweetened a total of two levels.

Let's say you are studying if an alcoholic support group and individual counseling combined is the most effective treatment for lowering alcohol consumption. You might split the study participants into three groups or levels:

- Medication only,
- Medication and counseling,
- Counseling only.

Your dependent variable would be the number of alcoholic beverages consumed per day.

If your groups or levels have a hierarchical structure (each level has unique subgroups), then use a nested ANOVA for the analysis. What Does “Replication” Mean?

It’s whether you are replicating (i.e. duplicating) your test(s) with multiple groups. With a two way ANOVA with replication , you have two groups and individuals within that group are doing more than one thing (i.e. two groups of students from two colleges taking two tests). If you only have one group taking two tests, you would use **without replication**.

TYPES OF TESTS.

There are two main types: one-way and two-way. Two-way tests can be with or without replication.

- One-way ANOVA between groups: used when you want to test **two groups** to see if there’s a difference between them.
- Two way ANOVA without replication: used when you have **one group** and you’re **double-testing** that same group. For example, you’re testing one set of individuals before and after they take a medication to see if it works or not.
- Two way ANOVA with replication: **Two groups**, and the members of those groups are **doing more than one thing**. For example, two groups of patients from different hospitals trying two different therapies.

ONE WAY ANOVA

A one way ANOVA is used to compare two means from two independent (unrelated) groups using the F-distribution. The null hypothesis for the test is that the two means are equal. Therefore, a significant result means that the two means are unequal. Examples of when to use a one way ANOVA

Situation 1: You have a group of individuals randomly split into smaller groups and completing different tasks. For example, you might be studying the effects of tea on weight loss and form three groups: green tea, black tea, and no tea. **Situation 2:** Similar to situation 1, but in this case the individuals are split into groups based on an attribute they possess. For example, you might be studying leg strength of people according to weight. You could split participants into weight categories (obese, overweight and normal) and measure their leg strength on a weight machine.

LIMITATIONS OF THE ONE WAY ANOVA

A one way ANOVA will tell you that at least two groups were different from each other. But **it won’t tell you which groups were different**. If your test returns a significant f-statistic, you may need to run an ad hoc test (like the Least Significant Difference test) to tell you exactly which groups had a difference in means.

TWO WAY ANOVA

A Two Way ANOVA is an extension of the One Way ANOVA. With a One Way, you have one independent variable affecting a dependent variable. With a Two Way ANOVA, there are two independents. Use a two way ANOVA when you have one measurement variable (i.e. a quantitative variable) and two nominal variables. In other words, if your experiment has a quantitative outcome and you have two categorical explanatory variables, a two way ANOVA is appropriate.

For example, you might want to find out if there is an interaction between income and gender for anxiety level at job interviews. The anxiety level is the outcome, or the variable that can be measured. Gender and Income are the two categorical variables. These categorical variables are also the

independent variables, which are called **factors** in a Two Way ANOVA.

The factors can be split into levels. In the above example, income level could be split into three levels: low, middle and high income. Gender could be split into three levels: male, female, and transgender. Treatment groups are all possible combinations of the factors. In this example there would be $3 \times 3 = 9$ treatment groups.

MAIN EFFECT AND INTERACTION EFFECT

The results from a Two Way ANOVA will calculate a main effect and an interaction effect. The main effect is similar to a One Way ANOVA: each factor's effect is considered separately.

With the interaction effect, all factors are considered at the same time. Interaction effects between factors are easier to test if there is more than one observation in each cell. For the above example, multiple stress scores could be entered into cells. If you do enter multiple observations into cells, the number in each cell must be equal.

Two null hypotheses are tested if you are placing one observation in each cell. For this example, those hypotheses would be: H01: All the income groups have equal mean stress. H02: All the gender groups have equal mean stress. For multiple observations in cells, you would also be testing a third hypothesis: H03:

The factors are independent or the interaction effect does not exist. An F-statistic is computed for each hypothesis you are testing.

ASSUMPTIONS FOR TWO WAY ANOVA

- The population must be close to a normal distribution.
- Samples must be independent.
- Population variances must be equal.
- Groups must have equal sample sizes.

MANOVA

MANOVA is just an ANOVA with several dependent variables. It's similar to many other tests and experiments in that it's purpose is to find out if the response variable (i.e. your dependent variable) is changed by manipulating the independent variable. The test helps to answer many research questions, including:

- Do changes to the independent variables have statistically significant effects on dependent variables?
- What are the interactions among dependent variables?
- What are the interactions among independent variables?

MANOVA EXAMPLE

Suppose you wanted to find out if a difference in textbooks affected students' scores in math and science. Improvements in math and science means that there are two dependent variables, so a MANOVA is appropriate. An ANOVA will give you a single (univariate) f-value while a MANOVA will give you a multivariate F value. MANOVA tests the multiple dependent variables by creating new, artificial, dependent variables that maximize group differences. These new dependent variables are linear combinations of the measured dependent variables.

INTERPRETING THE MANOVA

results If the multivariate F value indicates the test is statistically significant, this means that something is significant. In the above example, you would not know if math scores have improved, science scores have improved (or both). Once you have a significant result, you would then have to look at each individual component (the univariate F tests) to see which dependent variable(s) contributed to the statistically significant result. Advantages

1. MANOVA enables you to test multiple dependent variables.
2. MANOVA can protect against Type I errors. Disadvantages

1. MANOVA is many times more complicated than ANOVA, making it a challenge to see which independent variables are affecting dependent variables.
2. One degree of freedom is lost with the addition of each new variable.
3. The dependent variables should be uncorrelated as much as possible. If they are correlated, the loss in degrees of freedom means that there isn't much advantages in including more than one dependent variable on the test.

FACTORIAL ANOVA

A factorial ANOVA is an Analysis of Variance test with more than one independent variable, or "factor". It can also refer to more than one Level of Independent Variable. For example, an experiment with a treatment group and a control group has one factor (the treatment) but two levels (the treatment and the control).

The terms "two-way" and "three-way" refer to the number of factors or the number of levels in your test. Four-way ANOVA and above are rarely used because the results of the test are complex and difficult to interpret.

- A two-way ANOVA has two factors (independent variables) and one dependent variable. For example, time spent studying and prior knowledge are factors that affect how well you do on a test.
 - A three-way ANOVA has three factors (independent variables) and one dependent variable. For example, time spent studying, prior knowledge, and hours of sleep are factors that affect how well you do on a test
- Factorial ANOVA is an efficient way of conducting a test.

Instead of performing a series of experiments where you test one independent variable against one dependent variable, you can test all independent variables at the same time.

Variability In a one-way ANOVA, variability is due to the differences between groups and the differences within groups. In factorial ANOVA, each level and factor are paired up with each other ("crossed").

This helps you to see what interactions are going on between the levels and factors. If there is an interaction then the differences in one factor depend on the differences in another.

Let's say you were running a two-way ANOVA to test male/female performance on a final exam. The subjects had either had 4, 6, or 8 hours of sleep.

- IV1: SEX (Male/Female)

- IV2: SLEEP (4/6/8) • DV: Final Exam Score A two-way factorial ANOVA would help you answer the following questions:
 - Is sex a main effect? In other words, do men and women differ significantly on their exam performance?
 - Is sleep a main effect? In other words, do people who have had 4,6, or 8 hours of sleep differ significantly in their performance?
 - Is there a significant interaction between factors? In other words, how do hours of sleep and sex interact with regards to exam performance?
 - Can any differences in sex and exam performance be found in the different levels of sleep? Assumptions of Factorial ANOVA
- Normality: the dependent variable is normally distributed.
- Independence: Observations and groups are independent from each other.
- Equality of Variance: the population variances are equal across factors/levels.

COMPLETE AND INCOMPLETE BLOCK DESIGNS:

In most of the experiments, the available experimental units are grouped into blocks having more or less identical characteristics to remove the blocking effect from the experimental error. Such design is termed as block designs. The number of experimental units in a block is called the block size. If size of block = number of treatments and each treatment in each block is randomly allocated, then it is a full replication and the design is called a complete block design. In case, the number of treatments is so large that a full replication in each block makes it too heterogeneous with respect to the characteristic under study, then smaller but homogeneous blocks can be used. In such a case, the blocks do not contain a full replicate of the treatments. Experimental designs with blocks containing an incomplete replication of the treatments are called incomplete block designs.

COMPLETELY RANDOMIZED DESIGN (CRD)

The CRD is the simplest design. Suppose there are v treatments to be compared. All experimental units are considered the same and no division or grouping among them exist.

In CRD, the v treatments are allocated randomly to the whole set of experimental units, without

- making any effort to group the experimental units in any way for more homogeneity. Design is entirely flexible in the sense that any number of treatments or replications may be used. The number of replications for different treatments need not be equal and may vary from treatment to treatment.
- treatment depending on the knowledge (if any) on the variability of the observations on individual treatments as well as on the accuracy required for the estimate of individual treatment effect.

EXAMPLE:

Suppose there are 4 treatments and 20 experimental units, then – the treatment 1 is replicated, say 3 times and is given to 3 experimental units, - the treatment 2 is replicated, say 5 times and is given to 5 experimental units, - the treatment 3 is replicated, say 6 times and is given to 6 experimental units and – finally, the treatment 4 is replicated $[20-(6+5+3)]=6$ times and is given to the remaining 6 experimental units.

RANDOMIZED BLOCK DESIGN

If a large number of treatments are to be compared, then a large number of experimental units are required. This will increase the variation among the responses and CRD may not be appropriate to use. In such a case when the experimental material is not homogeneous and there are v treatments to be compared, then it may be possible to group the experimental material into blocks of sizes v units.

- Blocks are constructed such that the experimental units within a block are relatively homogeneous
- and resemble to each other more closely than the units in the different blocks. If there are b such blocks, we say that the blocks are at b levels. Similarly, if there are v treatments,
- we say that the treatments are at v levels. The responses from the b levels of blocks and v levels of treatments can be arranged in a two-way layout. The observed data set is arranged as follows:

LAYOUT:

A two-way layout is called a randomized block design (RBD) or a randomized complete block design (RCB) if, within each block, the v treatments are randomly assigned to v experimental units such that each of the $v!$ ways of assigning the treatments to the units has the same probability of being adopted in the experiment and the assignment in different blocks are statistically independent.

RANDOMIZATION:

- Number the v treatments $1, 2, \dots, v$. - Number the units in each block as $1, 2, \dots, v$. - Randomly allocate the v treatments to v experimental units in each block.

REPLICATION

Since each treatment is appearing in each block, so every treatment will appear in all the blocks. So each treatment can be considered as if replicated the number of times as the number of blocks. Thus in RBD, the number of blocks and the number of replications are same.

LOCAL CONTROL LOCAL CONTROL IS ADOPTED IN RBD IN THE FOLLOWING WAY: -

First form the homogeneous blocks of the experimental units. - Then allocate each treatment randomly in each block. The error variance now will be smaller because of homogeneous blocks and some variance will be parted away from the error variance due to the difference among the blocks. Example: Suppose there are 7 treatments denoted as T_1, T_2, \dots, T_7 , corresponding to 7 levels of a factor to be included in 4 blocks.

LATIN SQUARE DESIGN

The treatments in the RBD are randomly assigned to b blocks such that each treatment must occur in each block rather than assigning them at random over the entire set of experimental units as in the CRD.

There are only two factors – block and treatment effects – which are taken into account and the total number of experimental units needed for complete replication are bv where b and v are the numbers of blocks and treatments respectively.

If there are three factors and suppose there are b , v and k levels of each factor, then the total number of experimental units needed for a complete replication are bvk .

This increases the cost of experimentation and the required number of experimental units over RBD. In Latin square design (LSD), the experimental material is divided into rows and columns, each having the same number of experimental units which is equal to the number of treatments.

The treatments are allocated to the rows and the columns such that each treatment occurs once and only once in each row and in each column. In order to allocate the treatment to the experimental units in rows and columns, we take help from

LATIN SQUARES

Latin Square: A Latin square of order p is an arrangement of p symbols in $2 p$ cells arranged in p rows and p columns such that each symbol occurs once and only once in each row and in each column. For example, to write a Latin square of order 4, choose four symbols – A, B, C and D.

These letters are Latin letters which are used as symbols. Write them in a way such that each of the letters out of A, B, C and D occurs once and only once in each row and each column. For example, as This is a Latin square. We consider first the following example to illustrate how a Latin square is used to allocate the treatments and in getting the response.

EXAMPLE:

Suppose different brands of petrol are to be compared with respect to the mileage per liter achieved in motor cars. Important factors responsible for the variation in mileage are - the difference between individual cars. - the difference in the driving habits of drivers. We have three factors – cars, drivers and petrol brands. Suppose we have – 4 types of cars denoted as 1, 2, 3, 4. - 4 drivers that are represented by a, b, c, d. – 4 brands of petrol are indicated as A, B, C, D. the number of experiments. We choose only Now the complete replication will require 4 4 4 64 experiments. To choose such 16 experiments, we take the help of the Latin square. Suppose we choose the following Latin square:

Write them in rows and columns and choose rows for drivers, columns for cars and letter for petrol brands. Thus 16 observations are recorded as per this plan of treatment combination (as shown in the next figure) and further analysis is carried out. Since such design is based on Latin square, so it is called as a Latin square design.

The LSD is an incomplete three-way layout in which each of the three factors, viz, rows, columns and treatments, is at v levels each and observations only on $2 v$ of the $3 v$ possible treatment combinations are taken. Each treatment combination contains one level of each factor. The analysis of data in an LSD is conditional in the sense it depends on which Latin square is used for allocating the treatments. If the Latin square changes, the conclusions may also change.

STANDARD FORM OF LATIN SQUARE

A Latin square is in the standard form if the symbols in the first row and first columns are in the natural order (Natural order means the order of alphabets like A, B, C, D,...). Given a Latin square, it is possible to rearrange the columns so that the first row and first column remain in a natural order.

Orthogonal Latin squares If two Latin squares of the same order but with different symbols are such that when they are superimposed on each other, every ordered pair of symbols (different) occurs exactly once in the Latin square, then they are called orthogonal.

Mutually orthogonal Latin square A set of Latin squares of the same order is called a set of mutually orthogonal Latin square (or a hyper Graeco-Latin square) if every pair in the set is orthogonal. The total number of mutually orthogonal Latin squares of order p is at most $(p - 1)$.

Analysis of LSD (one observation per cell) In designing an LSD of order p , choose one Latin square at random from the set of all possible Latin squares of order p . Select a standard Latin square from the set of all standard Latin squares with equal probability.

- Randomize all the rows and columns as follows:
- Choose a random number, less than p , say $1/n$ and then 2nd row is the $1/n$ th row. - Choose another random number less than p , say $2/n$ and then 3rd row is the $2/n$ th row and so on. - Then do the same for the column. For Latin squares of the order less than 5, fix the first row and then randomize rows and then
- randomize columns. In Latin squares of order 5 or more, need not to fix even the first row. Just randomize all rows and columns.

MEASURES DESIGN PSYCHOLOGY

An independent measures design is a research method in which multiple experimental groups are used and participants are only in one group. Each participant is only in one condition of the independent variable during the experiment.

An example would be a drug trial for a new pharmaceutical. To test the effect on the disorder and discover any side effects an independent measures design could be used. The researchers use two different conditions: group A who receives the drug and group B who receives a placebo (a fake pill). The participants would be randomly assigned to one of the two groups- for it to be an independent measures design each participant would either be in group A or B, not both. Advantages of independent measures design include less time/money involved than a within subjects design and increased external validity because more participants are used. A disadvantage is that individual differences in participants can sometimes lead to differences in the groups' results. This can lead to false conclusions that the different conditions caused results when it was really just individual differences between the participants. Random sampling can help with this problem.

This should be done by random allocation, which ensures that each participant has an equal chance of being assigned to one group or the other.

Independent measures involve using two separate groups of participants; one in each condition. For example:

- **Con:** More people are needed than with the repeated measures design (i.e., more time consuming).
- **Pro:** Avoids order effects (such as practice or fatigue) as people participate in one condition only. If a person is involved in several conditions, they may become bored, tired and fed up by the time they come to the second condition, or becoming wise to the requirements of the experiment!
- **Con:** Differences between participants in the groups may affect results, for example; variations in age, gender or social background. These differences are known as participant variables (i.e., a type of extraneous variable).
- **Control:** After the participants have been recruited, they should be randomly assigned to their

groups. This should ensure the groups are similar, on average (reducing participant variables).

REPEATED MEASURES:

Repeated Measures design is an experimental design where the same participants take part in each condition of the independent variable. This means that each condition of the experiment includes the same group of participants.

Repeated Measures design is also known as within groups, or within-subjects design.

- **Pro:** As the same participants are used in each condition, participant variables (i.e., individual differences) are reduced.
- **Con:** There may be order effects. Order effects refer to the order of the conditions having an effect on the participants' behavior. Performance in the second condition may be better because the participants know what to do (i.e. practice effect). Or their performance might be worse in the second condition because they are tired (i.e., fatigue effect). This limitation can be controlled using counterbalancing.
- **Pro:** Fewer people are needed as they take part in all conditions (i.e. saves time).
- **Control:** To combat order effects the researcher counter balances the order of the conditions for the participants. Alternating the order in which participants perform in different conditions of an experiment. Counterbalancing
- Suppose we used a repeated measures design in which all of the participants first learned words in 'loud noise' and then learned it in 'no noise.' We would expect the participants to show better learning in 'no noise' simply because of order effects, such as practice. However, a researcher can control for order effects using counterbalancing.
- The sample would split into two groups experimental (A) and control (B). For example, group 1 does 'A' then 'B,' group 2 does 'B' then 'A' this is to eliminate order effects. Although order effects occur for each participant, because they occur equally in both groups, they balance each other out in the results.

COHORT STUDIES

Cohort design is a type of nonexperimental or observational study design. In a cohort study, the participants do not have the outcome of interest to begin with. They are selected based on the exposure status of the individual. They are then followed over time to evaluate for the occurrence of the outcome of interest. Some examples of cohort studies are

- (1) Framingham Cohort study,
- (2) Swiss HIV Cohort study, and
- (3) The Danish Cohort study of psoriasis and depression.

These studies may be prospective, retrospective, or a combination of both of these types. Since at the time of entry into the cohort study, the individuals do not have outcome, the temporality between exposure and outcome is well defined in a cohort design. If the exposure is rare, then a cohort design is an efficient method to study the relation between exposure and outcomes. A retrospective cohort study can be completed fast and is relatively inexpensive compared with a prospective cohort study. Follow-up of the study participants is very important in a cohort study, and losses are an important source of bias in these types of studies. These studies are used to estimate the cumulative incidence and incidence rate. One of the main strengths of a cohort study is the longitudinal nature of the data. Some of the variables in the data will be time-varying and some may be time independent. Thus,

advanced modeling techniques (such as fixed and random effects models) are useful in analysis of these studies.

Cohort studies are important in research design. The term “cohort” is derived from the Latin word “Cohors” – “a group of soldiers.” It is a type of nonexperimental or observational study design. The term “cohort” refers to a group of people who have been included in a study by an event that is based on the definition decided by the researcher. For example, a cohort of people born in Mumbai in the year 1980. This will be called a “birth cohort.” Another example of the cohort will be people who smoke. Some other terms which may be used for these studies are “prospective studies” or “longitudinal studies.”

In a cohort study, the participants do not have the outcome of interest to begin with. They are selected based on the exposure status of the individual. Thus, some of the participants may have the exposure and others do not have the exposure at the time of initiation of the study. They are then followed over time to evaluate for the occurrence of the outcome of interest.

As seen in at baseline, some of the study participants have exposure (defined as exposed) and others do not have the exposure (defined as unexposed). Over the period of follow-up, some of the exposed individuals will develop the outcome and some unexposed individuals will develop the outcome of interest. We will compare the outcomes in these two groups.

FRAMINGHAM COHORT STUDY

This cohort study was initiated in 1948 in Framingham. Framingham, at the time of initiation of the cohort, was an industrial town 21 miles west of Boston with a population of 28,000. This Framingham Heart Study recruited 5209 men and women (30–62- year-old) in the study to assess the factors associated with cardiovascular disease (CVD). The researchers also recruited second generation participants (children of original participants) in 1971 and the third general participants in 2002. This has been one of the landmark cohort studies and has contributed immensely to our knowledge of some of the important risk factors for CVD. The investigators have published 3064 publications using the Framingham Heart Study data.

SWISS HIV COHORT STUDY

This cohort study was initiated in 1988. It was a longitudinal study of HIV-infected individuals to conduct research on HIV pathogenesis, treatment, immunology, and coinfections. They also work on the social aspects of the disease and management of HIV-infected pregnant women. The study started with a recruitment of individuals ≥ 16 years. The cohort was gradually expanded to include the Swiss Mother and Child HIV Cohort Study. The cohort has provided useful information on various aspects of HIV and published 542 manuscripts on these aspects.

THE DANISH COHORT STUDY OF PSORIASIS AND DEPRESSION (JENSEN, 2015)

This is another large cohort study that evaluated the association between psoriasis and onset of depression. The participants in the cohort were enrolled from national registries in Denmark. None of the included participants had psoriasis or depression at baseline. The outcome of interest was the initiation of antidepressants or hospitalization for depression. The authors compared the incidence rates of hospitalization for depression in psoriasis and reference population. The psoriasis group was further classified as mild and moderate psoriasis. The authors found that psoriasis was an independent risk factor for new-onset depression in young people. However, in the elderly, it was

mediated through comorbid conditions.

We have presented examples of some large cohort studies. It will be worthwhile to read the design and conduct of these studies, and it will help the readers understand the practical aspects of conducting and analyzing cohort studies.

TYPES OF COHORT STUDIES PROSPECTIVE COHORT STUDY

In this type of cohort study, all the data are collected prospectively. The investigator defines the population that will be included in the cohort. They then measure the potential exposure of interest. The participants are then classified as exposed or unexposed by the investigator. The investigator then follows these participants. At baseline and during follow-up, the investigator also collects information on other variables that are important for the study (such as confounding variables). The investigator then assesses the outcome of interest in these individuals. Some of these outcomes may only occur once (for example, death), and some may occur multiple times (for example, conditions which may recur in the same individual – diarrhea, wheezing episodes, etc.).

RETROSPECTIVE COHORT STUDY

In this type of cohort study, the data are collected from records. Thus, the outcomes have occurred in the past. Even though the outcomes have occurred in the past, the basic study design is essentially the same. Thus, the investigator starts with the exposure and other variables at baseline and at follow-up and then measures the outcome during the follow-up period.

Sometimes, the direction may not be as well defined as prospective and retrospective. One may analyze retrospective data on a group of people well as collect prospective data from the same individuals.

EXAMPLES OF PROSPECTIVE AND RETROSPECTIVE COHORT STUDIES EXAMPLE 1

Our objective is to estimate the incidence of cardiovascular events in patients with psoriasis. We have decided to conduct a 10-year study. All the individuals who are diagnosed with psoriasis are eligible for being included in this cohort study. However, one has to ensure that none of them have cardiovascular events at baseline. Thus, they should be thoroughly investigated for the presence of these events at baseline before including them in the study. For this, we have to define all the events we are interested in the study (such as angina or myocardial infarction). The criteria for identifying psoriasis and cardiovascular outcomes should be decided before initiating the study. All those who do not have cardiovascular outcomes should be followed at regular intervals (predecided by the researcher and as required for clinical management). This will be a prospective cohort study.

EXAMPLE 2

Our objective is to assess the survival in HIV-infected individuals and the factors associated with survival. We have clinical data from about 430 HIV-infected individuals in the center. The follow-up period ranges from 3 months to 4 years, and we know that 33 individuals have died in this group. We decide to perform the survival analysis in this group of individuals. We prepare a clinical record form and abstract data from these clinical forms. This design will be a retrospective cohort study.

OUTCOMES IN A COHORT STUDY

A cohort study may have different types of outcomes. Some of the outcomes may occur only once.

In the above mentioned retrospective study, if we assess the mortality in these individuals, then the outcome will occur only once. Other outcomes in the cohort study may be measured more than once. For instance, if we assess CD4 counts in the same retrospective study, then the values of CD4 counts may change at every visit. Thus, the outcome will be measured at every visit.

STRENGTHS OF A COHORT STUDY

- **Temporality:** Since at the time of entry into the cohort study, the individuals do not have outcome, the temporality between exposure and outcome is well defined
- A cohort study helps us to study multiple outcomes in the same exposure. For example, if we follow patients of hypercholesterolemia, we can study the incidence of melasma or psoriasis in them. Thus, there is one exposure (hypercholesterolemia) and multiple outcomes (melasma and psoriasis). However, we have to ensure that none of the individuals have any of the outcomes at the baseline
- If the exposure is rare, then a cohort design is an efficient method to study the relation between exposure and outcomes
- It is generally said that a cohort design may not be efficient for rare outcomes (a case-control design is preferred). However, if the rare outcome is common in some exposures, then it may
- be useful to follow a cohort design. For example, melanoma is not a common condition in India. Hence, if we follow individuals to study the incidence of melanoma, then it may not be efficient. However, if we know that, theoretically, a particular chemical may be associated with melanoma, then we should follow a cohort of individuals exposed to this chemical (in occupational settings or otherwise) and study the incidence of melanoma in this group
- In a prospective cohort study, the exposure variable, other variables, and outcomes may be measured more accurately. This is important to maintain uniformity in the measurement of exposures and outcomes. This is also useful for exposures that may require subjective assessment or recall by the patient. For example, dietary history, smoking history, or alcoholic history, etc. This may help in reducing the bias in measurement of exposure
- A retrospective cohort study can be completed fast and is relatively inexpensive compared with a prospective cohort study. However, it also has other strengths of the prospective cohort study.

LIMITATIONS OF A COHORT STUDY

- One major limitation of a prospective cohort design is that it is time consuming and costly. For example, if we have to study the incidence of cardiovascular patients in patients of psoriasis, we may have to follow them up for many years before the outcome occurs
- In a retrospective cohort study, the exposure and the outcome variables are collected before the study has been initiated.
- Thus, the measurements may not be very accurate or according to our requirements. In addition, some of the exposures may have been assessed differently for various members of the cohort
- As discussed earlier, cohort studies may not be very efficient for rare outcomes except in some conditions.

ADDITIONAL POINTS IN COHORT STUDIES

Multiple cohort study

Sometimes, we may be interested to compare the outcomes in two or more groups of individuals. Thus, we may have a multiple cohort study. It is important the exposure, outcome, and other variables should be measured similarly in both the study and the comparison group.

Measurement of exposure and outcome Since the individuals are included in the study based on the exposure status, this has to be well defined and accurate. The outcomes also have to be well defined and measured similarly in all the participants. If you have more than one group in the cohort (as in multiple cohorts or reference population), you should ensure that the follow-up protocols are similar in all the groups.

It is quite possible that individuals participating in a cohort study may not be correctly classified – some exposed individuals may be classified as unexposed and the other way round. If the misclassification of the exposure or the outcome is random or nondifferential, then the two groups will be similar and the estimates from the study will be biased towards the null. Thus, we will underestimate the association between the exposure and the outcome. If, however, the misclassification is differential or nonrandom, then the estimates may be biased toward the null, away from the null, or may be an appropriate estimate.

FOLLOW-UP

Follow-up of the study participants is very important in a cohort study and losses are an important source of bias in these types of studies. Some patients are lost to follow-up in large cohorts; however, if the proportion is very high (>30%), then the validity of the results from this study are doubtful. This loss to follow-up becomes all the more important if it is related to the exposure or outcome of interest. For example, in our prospective study, majority of the patients who were lost to follow-up had severe psoriasis at the baseline, then we will get biased estimates from the study. Thus, managing follow-ups and minimizing losses are an important component of the design of a cohort study.

NESTED CASE-CONTROL STUDY

This is a specific type of study design nested within a cohort study. In this, the investigator will match the controls to the cases within a specific cohort.

The exposure of interest will be assessed in these selected cases and controls. For example, our hypothesis is that there is a biological marker that is present/elevated (to begin with) in individuals who develop cardiovascular events in psoriatic patients.

It is expensive to assess this marker in all patients. Thus, we select all those who develop the outcomes (cases) in our cohort and a sample of individuals who do not develop the outcomes (controls). An important aspect, however, is that we should have stored the biological material that we have collected at baseline, and the biological marker should be assessed in this sample. This procedure maintains the temporal strength of the cohort study.

TIME SERIES

The purpose of the present paper is to present a methodological approach to such research areas as psychotherapy, education, psychophysiology, operant research, etc., where the data consist of dependent observations over time. Existing methodologies are frequently inappropriate to research in these areas; common field methodologies are unable to control irrelevant variables and eliminate rival hypotheses, while traditional parametric laboratory designs relying on control groups are often unsuitable. New data-analysis techniques have made possible the development of a different methodological approach which can be applied in either the laboratory or in natural (field) settings.

This approach is responsive to ecological considerations (Willems, 1965) while permitting satisfactory experimental control. Control is achieved by a network of complementary control strategies, not solely by control-group designs.

INTERRUPTED TIME SERIES DESIGN

A variant of the pretest-posttest design is the **interrupted time-series design**. A time series is a set of measurements taken at intervals over a period of time. For example, a manufacturing company might measure its workers' productivity each week for a year. In an interrupted time series-design, a time series like this one is "interrupted" by a treatment.

In one classic example, the treatment was the reduction of the work shifts in a factory from 10 hours to 8 hours (Cook & Campbell, 1979). Because productivity increased rather quickly after the shortening of the work shifts, and because it remained elevated for many months afterward, the researcher concluded that the shortening of the shifts caused the increase in productivity.

Notice that the interrupted time-series design is like a pretest- posttest design in that it includes measurements of the dependent variable both before and after the treatment. It is unlike the pretest-posttest design, however, in that it includes multiple pretest and posttest measurements.

Figure 8.1 shows data from a hypothetical interrupted time-series study. The dependent variable is the number of student absences per week in a research methods course. The treatment is that the instructor begins publicly taking attendance each day so that students know that the instructor is aware of who is present and who is absent.

The top panel of Figure shows how the data might look if this treatment worked. There is a consistently high number of absences before the treatment, and there is an immediate and sustained drop in absences after the treatment.

The bottom panel of Figure shows how the data might look if this treatment did not work. On average, the number of absences after the treatment is about the same as the number before. This figure also illustrates an advantage of the interrupted time-series design over a simpler pretest-posttest design.

If there had been only one measurement of absences before the treatment at Week 7 and one afterward at Week 8, then it would have looked as though the treatment were responsible for the reduction. The multiple measurements both before and after the treatment suggest that the reduction between Weeks 7 and 8 is nothing more than normal week-to-week variation.

THE USE OF TIME SERIES IN DESIGN

The most persuasive experimental evidence comes from a triangulation of research designs as well as from a triangulation of measurement processes. The following three designs, when used in conjunction, represent such a triangulation:

- (a) the one-group pretest-posttest design;
- (b) the time-series design; and
- (c) the multiple time-series design. These designs need not be applied simultaneously;

THE ONE-GROUP PRETEST-FOLLOWUP DESIGN

This design, although inadequate when used alone, makes a significant and unique contribution to the total design package. It provides an external criterion measure of the outcome of a programmed intervention. Each subject serves as his own control, and the difference between his pre- and posttest scores represents a stringent measure of the degree to which "real life" program goals have been achieved.

For example, the ultimate success of psychotherapy is best evaluated in terms of extratherapeutic behavior change. This design, then, documents the fact of outcome-change without pinpointing the process producing the change.

THE TIME-SERIES DESIGN THIS DESIGN

involves successive observations throughout a programmed intervention and assesses the characteristics of the change process. It is truly the mainstay of the proposed design package because it serves several simultaneous functions. First, it is descriptive. The descriptive function of the time series is particularly important when the intervention extends over a considerable time period. The time series is the only design to furnish a continuous record of fluctuations in the experimental variables over the entire course of the program.

Second, the time-series design functions as an heuristic device. When coupled with a carefully kept historical log of potentially relevant nonexperimental events, the time series is an invaluable source of post hoc hypotheses regarding observed, but unplanned, changes in program variables.

Moreover, where treatment programs require practical administrative decisions, the time series serves as a source of hypotheses regarding the most promising decisions, and later as a feedback source regarding the consequences and effectiveness of such decisions.

Finally, the time series can function as a quasi-experimental design for planned interventions imbedded in the total program when a control group is implausible. depicts a time-series experiment with an extended intervention ; of course, in some cases, the intervention might simply be a discrete event. A time-series analysis must demonstrate that the perturbations of a system are not uncontrolled variations, that is, noise in the system. It is precisely this problem of partitioning noise from "effect" that has discouraged the use of time series in the social sciences.

THE MULTIPLE TIME-SERIES DESIGN

This design is basically a refinement of the simple time series. It is yet a more precise method for investigating specific program hypotheses because it allows the time series of the experimental group to be compared with that of a control group. As a result, it offers a greater measure of control over unwanted sources of rival hypotheses.

THE ANALYSIS OF TIME-SERIES DATA

The data resulting from the best of experimental designs is of little value unless subsequent statistical analyses permit the investigator to test the extent to which obtained differences exceed chance fluctuations. The above design package, with its emphasis on time-series designs, is a realistic possibility only because of recent developments in the field of mathematics. Appropriate analysis techniques have evolved from work in such diverse areas as economics, meteorology, industrial quality control, and psychology. Historically, the time-series design has been neglected

due to the lack of such appropriate analytical techniques. Two statistical methods for solving the problem of time-series analyses are presented below.

MANOVA

Multivariate ANOVA (MANOVA) extends the capabilities of analysis of variance (ANOVA) by assessing multiple dependent variables simultaneously. ANOVA statistically tests the differences between three or more group means. For example, if you have three different teaching methods and you want to evaluate the average scores for these groups, you can use ANOVA. However, ANOVA does have a drawback. It can assess only one dependent variable at a time. This limitation can be an enormous problem in certain circumstances because it can prevent you from detecting effects that actually exist.

MANOVA provides a solution for some studies. This statistical procedure tests multiple dependent variables at the same time. By doing so, MANOVA can offer several advantages over ANOVA.

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MANOVA ASSESSES THE DATA

Let's see what patterns we can find between the dependent variables and how they are related to teaching method. I'll graph the test and satisfaction scores on the scatterplot and use teaching method as the grouping variable. This multivariate approach represents how MANOVA tests the data. These are the same data, but sometimes how you look at them makes all the difference.

The graph displays a positive correlation between Test scores and Satisfaction. As student satisfaction increases, test scores tend to increase as well. Moreover, for any given satisfaction score, teaching method 3 tends to have higher test scores than methods 1 and 2. In other words, students who are equally satisfied with the course tend to have higher scores with method 3. MANOVA can test this pattern statistically to help ensure that it's not present by chance.

In your preferred statistical software, fit the MANOVA model so that Method is the independent variable and Satisfaction and Test are the dependent variables.

MANOVA Provides Benefits

Use multivariate ANOVA when your dependent variables are correlated. The correlation structure between the dependent variables provides additional information to the model which gives MANOVA the following enhanced capabilities:

- **Greater statistical power:** When the dependent variables are correlated, MANOVA can identify effects that are smaller than those that regular ANOVA can find.
- **Assess patterns between multiple dependent variables:** The factors in the model can affect the relationship between dependent variables instead of influencing a single dependent variable. As

the example in this post shows, ANOVA tests with a single dependent variable can fail completely to detect these patterns.

- **Limits the joint error rate:** When you perform a series of ANOVA tests because you have multiple dependent variables, the joint probability of rejecting a true null hypothesis increases with each additional test. Instead, if you perform one MANOVA test, the error rate equals the significance level.

(1) reading, (2) mathematics, and (3) moral reasoning skills. Using MANOVA the psychologist could examine how the two groups differ on a linear combination of the three measures. Perhaps the Catholic school children score higher on moral reasoning skills relative to reading and math when compared to the public school children? Perhaps the Catholic school children score higher on both moral reasoning skills and math relative to reading when compared to the public school children? These potential outcomes, or questions, are multivariate in nature because they treat the quantitative measures simultaneously and recognize their potential inter-relatedness. The goal of conducting a MANOVA is thus to determine how quantitative variables can be combined to maximally discriminate between distinct groups of people, places, or things.

As will be discussed below this goal also includes determining the theoretical or practical meaning of the derived linear combination or combinations of variables.

CONDUCTING THE MANOVA

Returning to the Big Five trait example, let us decide to pursue a truly multivariate approach. In other words, let us commit to examining the linear combinations of personality traits that might differentiate between the European American (EA), Asian American (AA), and Asian International (AI) students. Assuming that no a priori model for combining the Big Five traits is available, these six steps will consequently be followed:

APPLIED MULTIVARIATE RESEARCH

1. Conduct an omnibus test of differences among the three groups on linear combinations of the five personality traits.
2. Examine the linear combinations of personality traits embodied in the discriminant functions.
3. Simplify and interpret the strongest linear combination.
4. Test the simplified linear combination (multivariate composite) for statistical significance.
5. Conduct follow-up tests of group differences on the simplified multivariate composite.
6. Summarize results in APA style. If an existing model for combining the traits were available, a priori, then an abbreviated approach, which will be discussed near the end of this paper, would be undertaken.

Step 1: Conducting the Omnibus MANOVA. The omnibus null hypothesis for this example posits the EA, AA, and AI groups are equal with regard to their population means on any and all linear combinations of the Big Five personality traits.

This hypothesis can be tested using any one of the major computer software packages. In SPSS for Windows the General Linear Model (GLM) procedure can be used or the dated MANOVA routine can be run through the syntax editor.

SINGLE-FACTOR ANCOVA

In this model a single-factor ANOVA model is extended by specifying one or more additional

continuous (quantitative) variables called covariates. The resulting single-factor analysis of covariance (ANCOVA) model explains variation in a dependent variable by combining a categorical (qualitative) independent variable with one or more continuous (quantitative) variables. If a covariate is linearly related to the dependent variable, it will reduce pre-existing variability between subjects. In effect, the variance component in the dependent variable which is due to covariation with the covariate is removed ("partialled out") from the dependent variable. This reduces the variance of the error term in the model, which increases the sensitivity of the ANCOVA as compared to the same model without the covariate (ANOVA model). A higher test sensitivity means that smaller mean differences between groups will become significant as compared to a standard ANOVA model.

Note that ANCOVA has a similar goal as repeated measures ANOVA, namely to remove pre-existing differences between subjects. In repeated measures ANOVA models, this is achieved by measuring the same subjects under various conditions (within- subjects) instead of assigning different subjects to different conditions. From the obtained data, changes of the dependent variable across conditions are only analyzed within each subject completely removing between-subjects variability. In ANCOVA models, the reduction of inter-subject variability depends on the strength of correlation of the covariate with the dependent variable. This consideration implies that ANCOVA models are only useful for designs with between-subjects factors but provide no benefits in pure within-subjects factorial designs.

The obvious difference between ANOVA and ANCOVA is the the letter "C", which stands for 'covariance'. Like ANOVA, "Analysis of Covariance" (ANCOVA) has a single continuous response variable. Unlike ANOVA, ANCOVA compares a response variable by both a factor and a continuous independent variable (e.g. comparing test score by both 'level of education' and 'number of hours spent studying'). The term for the continuous independent variable (IV) used in ANCOVA is "covariate".

ANCOVA is also commonly used to describe analyses with a single response variable, continuous IVs, and no factors. Such an analysis is also known as a regression. In fact, you can get almost identical results in SPSS by conducting this analysis using either the "Analyze > Regression > Linear" dialog menus or the "Analyze > General Linear Model (GLM) > Univariate" dialog menus.

A key (but not only) difference in these methods is that you get slightly different output tables. Also, regression requires that user dummy code factors, while GLM handles dummy coding through the "contrasts" option. The linear regression command in SPSS also allows for variable entry in hierarchical blocks (i.e. stages).

SINGLE SUBJECT DESIGN PSYCHOLOGY

Single subject research design is a type of research methodology characterized by repeated assessment of a particular phenomenon (often a behavior) over time and is generally used to evaluate interventions. Repeated measurement across time differentiates single subject research design from case studies and group designs, as it facilitates the examination of client change in response to an intervention. Although the use of single subject research design has generally been limited to research, it is also appropriate and useful in applied practice.

A wide variety of valid, useful designs exist for the measurement of a single case. These designs are either classified as qualitative or quasi experimental designs as they do not contain the provisions

of random, representative samples or randomization to treatment/intervention. This classification convention also occurs because traditional statistical analyses based classical theorems are not used.

With focus currently on evidenced-based practice/medicine in health care, more exacting measurements of treatment are needed. The purposeful, visible emphasis on process and outcome data provides the participant/client with an ongoing view of the validity of the intervention approach. The evidence-based practice movement can be addressed easily with the low cost (i.e., low expense and time expenditure).

The Scientist Practitioner Model guides clinicians to use data collected in laboratory to guide decisions of treatment implementation. In turn, treatment implementation, according to the Scientist Practitioner Model, influences the direction of research. Research evidence of treatment effectiveness is valued. In single case designs, the systematic monitoring and evaluation positions the participant/client to adopt a problem-solving experiment, conjointly with the practitioner/field researcher on herself/himself. In so doing, the findings are immediate and directly applicable to their situation. In some cases, these approaches promote the generation of alternative interpretations of collected data and quite possibly, causal explanations of behaviors. The clinical practices of establishing support, setting up a conceptual/ethical concept of clients' situation, identification of areas of change/strength/weakness, selection and implementation of treatment, evaluation of change/plan for relapse and follow-up are conducted within the simple case design context.

All single case designs involve training the participant/client in observation practices. This training of the individual to understand what behavior to record, how to record the behavior and when to record the behavior is central to single case design. It is common for the practitioner/field researcher to work with the participant/client in their selection of a behavior to change and thereby, record. This becomes important as this descriptive data will ultimately become the pivotal source of information about the functional relationship between the target behavior for change and those behaviors that precede and follow (i.e., antecedent consequences) as they are typically interdependent. In fact, this circumstance is what is termed the functional assessment. Some representative target behaviors often used in an ABA single case design are: nutrition; hydration – amount of water; weight gain or loss; medication compliance; adherence to treatment; smoking cessation; substance use cessation. Client's values are incorporated in the choice of targets and goal setting procedures. The baseline measurement is followed by the implementation of a change in a target behavior such as the examples listed above. After the implementation period, the participant/client returns to an adlib or no intervention schedule.

The ABA design, like other single case designs, allows the client values to be incorporated into the choice of targets and goal setting procedures. In the AB design, the intervention is followed by a baseline period.

Conclusions

We find that single case designs are powerful measurement tools of behavior. The challenges and need for quantification that occurs in field settings can be uniquely and precisely addressed with single case designs.

MULTIPLE CHOICE QUESTION

1. Who authored the book "methods in Social Research"

- A. Wilkinson**
- B. CR Kothari**
- C. Kerlinger**
- D. Goode and Halt**

Ans:- D

2. "Research is an organized and systematic enquiry" Defined by

- A. Marshall**
- B. P.V. Young**
- C. Emory**
- D. Kerlinger**

Ans:- C

3. Research is a "Scientific undertaking" opined by

- A. Young**
- B. Kerlinger**
- C. Kothari**
- D. Emory**

Ans:- A

4. "A systematic step-by-step Procedure following logical process of reasoning" called

- A. Experiment**
- B. Observation**
- C. Deduction**
- D. Scientific method**

Ans:- D

5. Ethical Neutrality is a feature of

- A. Deduction**
- B. Scientific method**
- C. Observation**
- D. Experience**

Ans:- B

6. Scientific method is committed to

.....

- A. Objectivity**
- B. Ethics**
- C. Proposition**
- D. Neutrality**

Ans:- A

7. "One of the methods of logical reasoning process" is called

- A.** Induction
- B.** Deduction
- C.** Research
- D.** Experiment

Ans:- A

8. An essential Criterion of Scientific study is

- A.** Belief
- B.** Value
- C.** Objectivity
- D.** Subjectivity

Ans:- C

9. "Reasoning from general to particular "is called

- A.** Induction
- B.** deduction
- C.** Observation
- D.** experience

Ans:- B

10. "Deduction and induction are a part of system of reasoning" – stated by

- A.** Caroline
- B.** P.V.Young
- C.** Dewey John
- D.** Emory

Ans:- B

11. " A system of systematically interrelated concepts definitions and propositions that are advanced to explain and predict phenomena" ... is

- A.** Facts
- B.** Values
- C.** Theory
- D.** Generalization

Ans:- C

12. " A system of systematically interrelated concepts, definitions and propositions that are advanced to explain and Predict phenomena" defined by

- A.** Jack Gibbs
- B.** PV Young
- C.** Black

D. Rose Arnold

Ans:- B

13. Theory is “ a set of systematically related propositions specifying casual relationship among variables” is defined by

A. Black James and Champion

B. P.V. Young

C. Emory

D. Gibbes

Ans:- A

14. “Empirically verifiable observation” is

A. Theory

B. Value

C. Fact

D. Statement

Ans:- C

15. Fact is “empirically verifiable observation” --- is defined by

A. Good and Hatt

B. Emory

C. P.V. Young

D. Claver

Ans:- A

16 is “systematically conceptual structure of inter related elements in some

A. schematic form”

B. Concept

C. Variable

D. Model E. Facts

Ans:- C

17. Social Science deals with

A. Objects

B. Human beings

C. Living things

D. Non living things

Ans:- B

18. Science is broadly divided into.....

A. Natural and Social

B. Natural and Physical

- C. Physical and Mental
- D. Social and Physical

Ans:- A

19. Social Science try to explain..... Between human activities and natural laws

- A. governing them
- B. Causal Connection
- C. reason
- D. Interaction
- E. Objectives

Ans:- A

20. Social Science Research Problems

- A. Explain
- B. diagnosis
- C. Recommend
- D. Formulate

Ans:- B

21. Social research aims at.....

- A. Integration
- B. Social Harmony
- C. National Integration
- D. Social Equality

Ans:- A

22. The method by which a sample is chosen

- A. Unit
- B. design
- C. Random
- D. Census

Ans:- B

23. Basing conclusions without any bias and value judgment is

- A. Objectivity
- B. Specificity
- C. Values
- D. Facts

Ans:- A

24. Research is classified on the basis of_____and methods

- A. Purpose

- B. Intent
- C. Methodology
- D. Techniques

Ans:- B

25. Research undertaken for knowledge sake is

- A. Pure Research
- B. Action Research
- C. Pilot study
- D. Survey

Ans:- A

26. Example for fact finding study is

- A. Pure Research
- B. Survey
- C. Action Research
- D. Long term Research

Ans:- B

27. Facts or information's are analyzed and critical evaluation is made in

- A. Survey
- B. Action research
- C. Analytical research
- D. Pilot study

Ans:- C

28. Research conducted to find solution for an immediate problem is

- A. Fundamental Research
- B. Analytical Research
- C. Survey
- D. Action Research

Ans:- D

29. Fundamental Research is otherwise called

- A. Action Research
- B. Survey
- C. Pilot study
- D. Pure Research

Ans:- D

30. Motivation Research is a type of..... research

- A. Quantitative
- B. Qualitative

- C. Pure
- D. Applied

Ans:- B

31. Research related to abstract ideas or concepts is

- A. Empirical research
- B. Conceptual Research
- C. Quantitative research
- D. Qualitative research

Ans:- B

32. A research which follows case study method is called

- A. Clinical or diagnostic
- B. Causal
- C. Analytical
- D. Qualitative

Ans:- A

33. Research conducted in class room atmosphere is called

- A. Field study
- B. Survey
- C. Laboratory Research
- D. Empirical Research

Ans:- C

34. Research through experiment and observation is called

- A. Clinical Research
- B. Experimental Research
- C. Laboratory Research
- D. Empirical Research

Ans:- D

35. Population Census is an example of Research

- A. Survey
- B. Empirical
- C. Clinical
- D. Diagnostic

Ans:- A

36. The author of " The Grammar of Science" is

- A. Ostle
- B. Richard
- C. Karl Pearson

D. Kerlinger

Ans:- C

37. "The Romance of Research" is authored by

A. Redmen and Mory

B. P.V.Young

C. Robert C meir

D. Harold Dazier

Ans:- A

38. is a way to systematically solve the research problem

A. Technique

B. Operations

C. Research methodology

D. Research Process

Ans:- C

39. Good Research is always

A. Slow

B. Fast

C. Narrow

D. Systematic

Ans:- D

40. Good research is

A. Logical

B. Non logical

C. Narrow

D. Systematic

Ans:- A

41. "Criteria of Good Research" is written by

A. Delta Kappan

B. James Harold Fox

C. P.V.Young

D. Karl Popper

Ans:- B

42. Research method is a part of

A. Problem

B. Experiment

C. Research Techniques

D. Research methodology

Ans:- D

43. Identifying causes of a problem and possible solution to a problem is

- A.** Field Study
- B.** diagnosis tic study
- C.** Action study
- D.** Pilot study

Ans:- B

44 helps in social planning

- A.** Social Science Research
- B.** Experience Survey
- C.** Problem formulation
- D.** diagnostic study

Ans:- A

45. “Foundations of Behavioral Research” is written by

- A.** P.V. Young
- B.** Kerlinger
- C.** Emory
- D.** Clover Vernon

Ans:- B

46. Methods and issues in Social Research” is written by

- A.** Black James and Champions
- B.** P.V. Young
- C.** Mortan Kaplan
- D.** William Emory

Ans:- A

47. “Scientific Social Survey and Research” is written by

- A.** Best John
- B.** Emory
- C.** Clover
- D.** P.V. Young

Ans:- D

48. “Doubt is often better than

- A.** Belief
- B.** Value
- C.** Confidence
- D.** Overconfidence

Ans:- D

49. Research help in explaining the with which something operates.

- A.** Velocity
- B.** Momentum
- C.** Frequency
- D.** gravity

Ans:- C

50 is a motivation for research in students

- A.** Research degree
 - B.** Research Academy
 - C.** Research Labs
 - D.** Research Problems
- Ans:- A

51. Which of the following is an example of primary data?

- A.** Book
- B.** Journal
- C.** News Paper
- D.** Census Report

Ans:- C

52. Major drawback to researchers in India is

- A.** Lack of sufficient number of Universities
- B.** Lack of sufficient research guides
- C.** Lack of sufficient Fund
- D.** Lack of scientific training in research

Ans:- D

53. ICSSR stands for

- A.** Indian Council for Survey and Research
- B.** Indian Council for strategic Research
- C.** Indian Council for Social Science Research
- D.** Inter National Council for Social Science Research

Ans:- C

54. UGC Stands for

- A.** University Grants Commission
 - B.** Union Government Commission
 - C.** University Governance Council
 - D.** Union government Council
- Ans:- A

55. JRF is for

- A.** Junior Research Functions

- B.** Junior Research Fellowship
- C.** Junior Fellowship
- D.** None of the above

Ans:- B

56 is the first step of Research process

- A.** Formulation of a problem
- B.** Collection of Data
- C.** Editing and Coding
- D.** Selection of a problem

Ans:- D

57. A problem well put is

- A.** Fully solved
- B.** Not solved
- C.** Cannot be solved
- D.** half- solved

Ans:- D

58 is a source of problem

- A.** Schools and Colleges
- B.** Class Room Lectures
- C.** Play grounds
- D.** Infra structures

Ans:- B

59. A question which requires a solution is

- A.** Observation
- B.** Problem
- C.** Data
- D.** Experiment

Ans:- B

60. Converting a question into a Researchable problem is called

- A.** Solution
- B.** Examination
- C.** Problem formulation
- D.** Problem Solving

Ans:- C

61. While Selecting a problem, problem which is no taken

- A.** Very Common
- B.** Overdone

C. Easy one

D. rare

Ans:- B

62. The first step in formulating a problem is

A. Statement of the problem

B. Gathering of Data

C. Measurement

D. Survey

Ans:- A

63 will help in finding out a problem for research

A. Professor

B. Tutor

C. HOD

D. Guide

Ans:- D

64. Second step in problem formulation is

A. Statement of the problem

B. Understanding the nature of the problem

C. Survey

D. Discussions

Ans:- B

65. Third step in problem formulation is

A. Statement of the problem

B. Understanding the nature of the problem

C. Survey the available literature

D. Discussion

Ans:- C

66. Fourth step in problem formulation is

A. Develop ideas through discussion

B. Survey

C. Statement of problem

D. Enactment

Ans:- A

67. Last step in problem formulation is

A. Survey

B. Discussion

C. Literature survey

D. Re Phrasing the Research problem

Ans:- D

68. In the formulation of the problem we need to give a

- A. Title**
- B. Index**
- C. Bibliography**
- D. Concepts**

Ans:- A

69. Objectives in problem formulation means

- A. Questions to be answered**
- B. methods**
- C. Techniques**
- D. methodology**

Ans:- A

70. The problem selected must have

- A. Speed**
- B. Facts**
- C. Values**
- D. Novelty**

Ans:- D

71. The formulated problem should have

- A. Originality**
- B. Values**
- C. Coherence**
- D. Facts**

Ans:- A

72. The purpose of Social Science Research is

- A. Academic and Non academic**
- B. Cultivation**
- C. Academic**
- D. Utilitarian**

Ans:- B

73. The Academic purpose is to have

- A. Information**
- B. firsthand knowledge**
- C. Knowledge and information**
- D. models**

Ans:- C

74. Social Science Research creates Social

- A.** Alienation
- B.** Cohesion
- C.** mobility
- D.** Integration

Ans:- B

75 is a quality of Good Researcher

- A.** Scientific temper
- B.** Age
- C.** Money
- D.** time

Ans:- A

76. Social Science Research in India aims at a State

- A.** Secular
- B.** Totalitarian
- C.** democratic
- D.** welfare

Ans:- D

77. A _____ is an abstraction formed by generalization from particulars

- A.** Hypothesis
- B.** Variable
- C.** Concept
- D.** facts

Ans:- C

78. Concept is of two types

- A.** Abstract and Coherent
- B.** Concrete and Coherent
- C.** Abstract and concrete
- D.** None of the above

Ans:- C

79. Concepts are of _____ types

- A.** 4
- B.** 6
- C.** 10
- D.** 2

Ans:- D

80. There is a concept by

- A. Observation
- B. formulation
- C. Theory
- D. Postulation

Ans:- D

81. Another concept is by

- A. Formulation
- B. Postulation
- C. Intuition
- D. Observation

Ans:- C

82. Concepts are _____ of Research

- A. guide
- B. tools
- C. methods
- D. Variables

Ans:- B

83. Concepts are

- A. Metaphor
- B. Simile
- C. Symbols
- D. Models

Ans:- C

84. Concepts represent various degree of

- A. Formulation
- B. Calculation
- C. Abstraction
- D. Specification

Ans:- C

85. Concepts which cannot be given operational definitions are
concepts

- A. Verbal
- B. Oral
- C. Hypothetical
- D. Operational

Ans:- C

86. "Concept is in reality a definition in short hand or a class or group of facts" –defined by

- A.** Kerlinger
- B.** P.V. Young
- C.** Aurthur
- D.** Kaplan

Ans:- B

87. Different people hold of the same thing

- A.** Same and different
- B.** Same
- C.** different
- D.** None of the above

Ans:- C

88. Many concepts find their origin from

- A.** Greek
- B.** English
- C.** Latin
- D.** Many languages

Ans:-D

89. A tentative proposition subject to test is

- A.** Variable
- B.** Hypothesis
- C.** Data
- D.** Concept

Ans:- B

90. Analogies are sources of

- A.** Data
- B.** Concept
- C.** Research
- D.** Hypothesis

Ans:- D

91. "A Proposition which can be put to test to determine its validity" Defined by

- A.** Lund berg
- B.** Emory
- C.** Johnson
- D.** Good and Hatt

Ans:- D

92. " A tentative generalization" stated by

- A.** Good and Hatt
- B.** Lund berg
- C.** Emory
- D.** Orwell

Ans:- B

93. Propositions which describe the characteristics areHypothesis

- A.** Descriptive
- B.** Imaginative
- C.** Relational
- D.** Variable

Ans:- A

94. A Hypothesis which develops while planning the research is

- A.** Null Hypothesis
- B.** Working Hypothesis
- C.** Relational Hypothesis
- D.** Descriptive Hypothesis

Ans:- B

95. When a hypothesis is stated negatively it is called

- A.** Relational Hypothesis
- B.** Situational Hypothesis
- C.** Null Hypothesis
- D.** Casual Hypothesis

Ans:- C

96. The first variable is variable

- A.** Abstract
- B.** Dependent
- C.** Independent
- D.** Separate

Ans:- C

97. The second variable is called.....

- A.** Independent
- B.** Dependent
- C.** Separate
- D.** Abstract

Ans:- B

98. Hypothesis which explain relationship between two variables is

- A. Causal
- B. Relational
- C. Descriptive
- D. Tentative

Ans:- B

99. Null means

- A. One
- B. Many
- C. Zero
- D. None of these

Ans:- C

100 . Represent common sense ideas

- A. Statistical Hypothesis
- B. Complex Hypothesis
- C. Common sense Hypothesis
- D. Analytical Hypothesis

Ans:- C

101. Which one of the following is regarded as the very breath of an experiment?

- A. Independent Variable
- B. Dependent Variable
- C. Controlled Variable
- D. Experimental Control
- E. None of the above

Ans:- D

102. When large groups of interconnected facts are considered together in a consistent manner, we get a/an:

- A. Scientific theory
- B. Non-scientific theory
- C. Social theory
- D. Authentic theory
- E. None of the above

Ans:- A

103. Experimental method starts with some problems which have:

- A. No solution for a brief time span
- B. No adequate solution
- C. An immediate solution
- D. No hypothesis
- E. None of the above

Ans:- B

104. When we assign numbers to objects, events or mental phenomena, we obtain a:

- A.** Scale
- B.** Rule
- C.** Test
- D.** Measure
- E.** None of the above

Ans:- A

105. Interval Scales have:

- A.** Equal appearing units
- B.** No equal appearing units
- C.** No statistical value
- D.** No mathematical Design
- E.** None of the above

Ans:- A

106. We find a true zero in a/an:

- A.** Interval Scale
- B.** Ordinal Scale
- C.** Rating Scale
- D.** Ratio Scale
- E.** None of the above

Ans:- D

107. Method of rating or Method of successive categories is otherwise called as:

- A.** Interval Scale
- B.** Method of Introspection
- C.** Method of Observation
- D.** Method of graded dichotomies
- E.** None of the above

Ans:- D

108. The first rating scale was developed by:

- A.** Starch (1910)
- B.** Diggory (1953)
- C.** Ebbinghaus (1885)
- D.** Galton (1883)
- E.** J. B. Watson (1913)

Ans:- D

109. The method of ranking was formerly known as the method of:

- A.** Order of Merit
- B.** Order of Steps
- C.** Sequential Order
- D.** Constant Intervals
- E.** None of the above

Ans:- A

110. The method of 'paired comparison' was introduced by:

- A.** Watson
- B.** Galton
- C.** Cohn
- D.** Weber
- E.** Fechner

Ans:- C

111. While studying colour preferences, the method of 'paired' comparison' was introduced by Cohn in:

- A.** 1148 AD
- B.** 1481 AD
- C.** 1984 AD
- D.** 1894 AD
- E.** 1418 AD

Ans:- D

112. From the following, who is the first scientist to undertake systematic and statistical investigations of individual differences?

- A.** 1. P. Pavlov
- B.** C. E. Spearman
- C.** J. B. Watson
- D.** Francies Galton
- E.** William Mc Dougall

Ans:- D

113. The term "mental tests" was first employed by:

- A.** Spearman
- B.** Binet
- C.** James
- D.** Cattell
- E.** Mc Daugall

Ans:- A

114. According to P. T. Young, a comprehensive study of a social unit be that a person, a group, a social institution, a district or a community is called a:

- A.** Case study
- B.** Cultural study
- C.** Class study
- D.** Group Study
- E.** None of the above

Ans:- A

115. Ex-Post Facto Research is a systematic empirical enquiry in which the scientist does not have direct control of:

- A.** Independent Variables
- B.** Dependent Variables
- C.** Both Independent and Dependent Variables
- D.** Controlled Variables
- E.** None of the above

Ans:- A

116. A laboratory experiment is a research study in which the variance of all the possible influential independent variables not pertinent to the immediate problem of the investigations is kept at a:

- A.** Maximum
- B.** Constant level
- C.** Highest Point
- D.** Minimum
- E.** None of the above

Ans:- D

117. A research study in a realistic situation in which one or more independent variables are manipulated by the experimenter under as carefully controlled conditions as the situation permit is known as:

- A.** A field experiment
- B.** A situational experiment
- C.** A case study
- D.** Observational study
- E.** None of the above

Ans:- A

118. The variables in a field experiment operate more strongly than those used in:

- A.** Case study
- B.** Introspective method
- C.** Laboratory Experiment
- D.** Observational Method
- E.** None of the above

Ans:- C

119. The field experiments have the advantage of investigating more fruitfully the dynamics of interrelationships of:

- A.** Small groups of Variables
- B.** Large groups of Variables
- C.** Both small and large groups of Variables
- D.** Independent Variables
- E.** Dependent Variables

Ans:- A

120. Which type of research is approached through the methods of personal interviews, mailed questionnaires and personal discussions besides indirect oral investigation?

- A.** Case Study
- B.** Field Study
- C.** Survey Research
- D.** Observation
- E.** Experimentation

Ans:- C

121. Which type of research is a product of developmental programming that has been adopted on a very large scale in the recent years more practically particularly after Second World War when most of the Third World Countries emerged on the development scene?

- A.** Case Study
- B.** Survey Research
- C.** Experimentation
- D.** Evaluation Research
- E.** None of the above

Ans:- D

122. A research through launching of a direct action with the objective of obtaining workable solutions to the given problems is known as:

- A.** Action Research
- B.** Survey Research
- C.** Evaluation Research
- D.** Experimentation
- E.** None of the above

Ans:- A

123. A proposition which can be put to determine its validity is called:

- A.** Variable
- B.** Error
- C.** Hypothesis
- D.** Problem
- E.** None of the above

Ans:- C

124. The least noticeable value of a stimulus is called:

- A.** Stimulus Threshold
- B.** Response Threshold
- C.** Hypothesis
- D.** Problem
- E.** None of the above

Ans:- A

125. Which method is regarded as the most preferred method of psychology?

- A.** Observation
- B.** Introspection
- C.** Case Study
- D.** Experimental Method
- E.** Action Research

Ans:- D

126. "I bet this will happen if I do this" design of experimentation otherwise known as:

- A.** Exploratory Experimentation
- B.** Case Study
- C.** Hypothesis Testing
- D.** Survey Research
- E.** None of the above

Ans:- C

127. To ensure that the influence of all relevant variables is the same for all the subjects and does not change during the experimental period is the main objective of:

- A.** Experimental Error
- B.** Experimental Control
- C.** Experimental Variables
- D.** Hypothesis Testing
- E.** None of the above

Ans:- B

128. Field Study method is the method of:

- A.** Laboratory Observation
- B.** Situational Observation
- C.** Naturalistic Observation
- D.** Occasional Observation
- E.** None of the above

Ans:- C

129. In studying the public opinion:

- A.** Field Study method is applied
- B.** Action Research is applied
- C.** Survey Research is applied
- D.** Scaling method is applied
- E.** None of the above

Ans:- A

130. Which scale represents the lowest level of measurement and imparts the least information?

- A.** Nominal Scale
- B.** Ordinal Scale
- C.** Interval Scale
- D.** Ratio Scale
- E.** None of the above

Ans:- A

131. Which Scale has an absolute zero at the point of origin?

- A.** Ordinal Scale
- B.** Interval Scale
- C.** Nominal Scale
- D.** Ratio Scale
- E.** None of the above

Ans:- D

132. The method of selecting a portion of the universe with a view to drawing conclusion about the universe 'in toto' is known as:

- A.** Scaling
- B.** Leveling
- C.** Randomizing
- D.** Sampling
- E.** None of the above

Ans:- D

133. How many samples out of 100 samples drawn from a given population, the researcher wants, should represent the true population estimates is known as:

- A.** The confidence level
- B.** The sampling level
- C.** The situational level
- D.** The experimental level
- E.** None of the above

Ans:- A

134. The most common method of sampling in marketing researches and election polls is:

- A.** Random Sampling
- B.** Stratified Random Sampling
- C.** Quota Sampling
- D.** Proportionate Stratified Sampling
- E.** Cluster Sampling

Ans:- C

135. Itemized rating scales are otherwise known as:

- A.** Numerical Scales
- B.** Rank Order Scales
- C.** Graphic rating Scales
- D.** Comparative Scales
- E.** None of the above

Ans:- A

136. The men of medicine of the ancient as well as the modern tribal groups are masters in the techniques of:

- A.** Suggestion and Hypnosis
- B.** Experimentation
- C.** Introspection
- D.** Field Study
- E.** None of the above

Ans:- A

137. In India, the first psychological laboratory was started in the year 1916 in Calcutta University and the second in 1923 in Mysore University. Both these laboratories are the result of the endeavour of:

- A.** Prof. K. Kautilya
- B.** Prof. B. Sinha
- C.** Prof. B. N. Seal
- D.** Prof. R. N. Rath
- E.** None of the above

Ans:- C

138. In Observation Method, there is a tendency to read one's own thought and feeling into other's mind. This may be otherwise called:

- A.** Projection
- B.** Sublimation
- C.** Identification
- D.** Rationalization
- E.** None of the above

Ans:- A

139. In the field of sensation, psychologists can easily gather valuable information's by the help of:

- A.** Survey Method
- B.** Introspection Method
- C.** Experimentation
- D.** Clinical Method
- E.** None of the above

Ans:- B

140. When a person is becoming angry, if he starts observing and studying his state of mind simultaneously, he will not be able to show his anger. The moment he starts observing his own anger, it may subside. This problem can be partially solved by observing the experience after it is over. This is popularly known as:

- A.** Retrospection
- B.** Introjection
- C.** Projection
- D.** Identification
- E.** None of the above

Ans:- A

141. There are some people in the world who can move objects which are away from them without using any form of physical force. In psychology, this phenomenon is called:

- A.** Psychoanalysis
- B.** Telepathy
- C.** Precognition
- D.** Psychokinesis
- E.** Levitation

Ans:- D

142. The story of the Bible affirms that St. Peter walked on the surface of water. Among the Indian mystics, Padmapada, a disciple of Adi Sankar is reported to have walked across water, his steps being supported by lotus flowers. In psychology, this form of mysterious behaviour is popularly known as:

- A.** Levitation
- B.** Telepathy
- C.** Psychokinesis
- D.** Precognition
- E.** None of the above.

Ans:- A

143. Some people are able to know and predict events long before others can. This process is popularly known as:

- A.** Telepathy
- B.** Precognition

- C. Levitation
- D. Psychokinesis
- E. None of the above

Ans:- B

144. Some people in this world who are able to understand the thought processes of other individuals who are far away and perhaps even influence them without any form of contact. In psychology, this phenomenon is popularly known as:

- A. Telepathy
- B. Precognition
- C. Levitation
- D. Psychokinesis
- E. None of the above

Ans:- A

145. A recent development of "Applied Social Psychology" which is concerned with the application of psychology in solving the problems of particular communities of people like village community, the urban community and the socially backward community etc. is popularly known as:

- A. Community Psychology
- B. Group Psychology
- C. Educational Psychology
- D. Criminal Psychology
- E. None of the above

Ans:- A

146. Non-naturalistic observations on children may be contrived in a:

- A. Society
- B. Group
- C. Laboratory
- D. School
- E. None of the above

Ans:- C

147. Projective test is a:

- A. Non-naturalistic Observation
- B. Naturalistic Observation
- C. Self Observation
- D. Internal Observation
- E. None of the above

Ans:- A

148. The qualitative changes occurring in behavioural characteristics of the child leading towards maturity is otherwise known as:

- A.** Development
- B.** Growth
- C.** Maturation
- D.** Learning
- E.** Intelligence

Ans:- A

149. The earlier concepts of "Child Development" started with the:

- A.** Birth of the Child
- B.** Death of the Child
- C.** Conception
- D.** Phallic Stage
- E.** Second year of the Child

Ans:- A

150. The concept which refers to the consistency of scores obtained by the same persons when re-examined with the same test on different occasions is known as:

- A.** Validity
- B.** Reliability
- C.** Standard Error
- D.** Error Variance
- E.** None of the above

Ans:- B

151. Experimental Analysis enables us to discern lawful relationships between antecedents and consequents involved in:

- A.** Behaviour
- B.** Experience
- C.** Habit
- D.** Attitude
- E.** None of the above

Ans:- A

152. When large groups of interconnected facts are considered together in a consistent manner, we get a:

- A.** Scientific Theory
- B.** Critical Problem
- C.** Combined Result
- D.** Confirmed Fact
- E.** None of the above

Ans:- A

153. Suppose you have a glass of milk and with a measuring glass you continue to add half a c.c.

of plain tea at every step, till your friend reports a change in judgement in the colour of the milk. The quantity of tea added, has just crossed what is just termed as:

- A.** Illusion
- B.** Absolute Threshold
- C.** Colour Blindness
- D.** Just Noticeable Difference
- E.** None of the above

Ans:- B

154. Suppose one Experimenter (E) in psychology firmly believes that Brahmin children are inherently superior to the Harijan children. Naturally he would never think of home environment as an explanation. This is a very obvious example of:

- A.** Experimenter's Bias
- B.** Subject's Bias
- C.** Stimulus Error
- D.** Response Error
- E.** None of the above

Ans:- A

155. Which one of the following approaches tries to analyze human behaviour in terms of stimulus-response units acquired through the process of learning, mainly through instrumental conditioning?

- A.** Cognitive Approach
- B.** Dynamic and Psychoanalytic Approach
- C.** Stimulus-Response-Behaviouristic Approach
- D.** Existential Approach
- E.** Organismic, Wholistic and Self Approach

Ans:- C

156. The approach which has its roots in Gestalt Psychology is popularly known as:

- A.** Wholistic Approach
- B.** Stimulus-Response- Behaviouristic Approach
- C.** Dynamic and Psychoanalytic Approach
- D.** Cognitive Approach
- E.** None of the above

Ans:- D

157. Which approach emphasises the role of instinctual processes and their modification in the course of interaction with the society?

- A.** Dynamic and Psychoanalytic Approach
- B.** Cognitive Approach
- C.** Wholistic Approach
- D.** Stimulus-Response- Behaviouristic Approach
- E.** None of the above

Ans:- A

158. Which approach placed emphasis on human existence—the need to establish a sense of personal identity and to build meaningful links with the world?

- A.** Cognitive Approach
- B.** Dynamic and Psychoanalytic Approach
- C.** Wholistic Approach
- D.** Existential Approach
- E.** None of the above

Ans:- D

159. Existentialism tries to reach modern man, offer him help in terms of clarifying his values, work out a meaningful and purposive existence. Psychologists who shaped this approach were:

- A.** Rollo May, R. D. Laing and Erick Fromm
- B.** G. W. Allport, R. B. Catell and H.J. Eysenk
- C.** Erickson and Sullivan
- D.** Piaget, Bruner and Witkin
- E.** None of the above

Ans:- A

160. The system which still survives very nearly in its rigid forms is:

- A.** Cognitive Approach
- B.** Dynamic and Psychoanalytic Approach
- C.** Wholistic Approach
- D.** Existential Approach
- E.** None of the above

Ans:- B

161. Which approach tells us that under normal conditions the Organism is not a passive recipient of stimuli but an active, seeking and striving entity trying to master the environment and also master itself?

- A.** Organismic, Wholistic and Self Approaches
- B.** Dynamic and Psychoanalytic Approach
- C.** Cognitive Approach
- D.** Existential Approach
- E.** None of the Above

Ans:- A

162. Psychologists are sometimes interested to study consciousness even though they have no method of observing it directly except by using:

- A.** 'Inference' as the only tool
- B.** 'Experimentation' as the only tool
- C.** 'Observation' technique
- D.** 'Introspection' technique

E. None of the above

Ans:- A

163. The term “unconscious motivation” describes the key idea of:

A. Structuralism

B. Functionalism

C. Psychoanalysis

D. Behaviourism

E. None of the above

Ans:- C

164. The psychologists who are especially concerned with increasing the efficiency of learning in school by applying their psychological knowledge about learning and motivation to the curriculum are popularly known as :

A. Experimental Psychologists

B. Clinical Psychologists

C. Physiological Psychologists

D. Educational Psychologists

E. Social Psychologists

Ans:- D

165. In some developed countries like U.S A. and U.K. many psychologists are engaged for diagnosing learning difficulties and trying to remedy them. These psychologists are popularly called:

A. School Psychologists

B. Social Psychologists

C. Experimental Psychologists

D. Industrial Psychologists

E. Organisational Psychologists

Ans:- A

166. Today, private and public organizations also apply psychology to problems of management and employee training, to supervision of personnel, to improving communication within the organization, to counselling employees and to alleviating industrial strife. The applied psychologists who do this work are sometimes called:

A. Personnel Psychologists

B. Organizational Psychologists

C. Experimental Psychologists

D. Social Psychologists

E. None of the above

Ans:- A

167. A person who uses the particular psychotherapeutic techniques which originated with Sigmund Freud and his followers is called:

A. A psychoanalyst

- B.** A psychiatrist
- C.** A child psychologist
- D.** A clinical psychologist
- E.** None of the above

Ans:- A

168. Finding the causes of behaviour from a number of observations is called:

- A.** Inductive reasoning
- B.** Observational technique
- C.** Deductive reasoning
- D.** Introspection
- E.** None of the above

Ans:- A

169. The clinical method is ordinarily used only when people come to psychologists with:

- A.** Social problems
- B.** Personal Problems
- C.** Organizational problems
- D.** Internal problems
- E.** None of the above

Ans:- B

170. The technique of regulating various variables in an experiment is called:

- A.** Independent Variable
- B.** Dependent variable
- C.** Experimental control
- D.** Controlled variable
- E.** None of the above

Ans:- C

171. Psychologists with the Biological perspective try to relate behaviour to functions of:

- A.** Body
- B.** Mind
- C.** Soul
- D.** Unconscious
- E.** Subconscious

Ans:- A

172. A little girl Leny pushed Bapula, her brother, off his tricycle. She learned to behave this way because the behaviour paid off in the past, in other words, she learned to act aggressively in certain situations because she was rewarded for such behaviour in the past. With which perspective, a psychologist can study this type of problem?

- A.** Biological Perspective

- B.** Behavioural Perspective
- C.** Cognitive Perspective
- D.** Social Perspective
- E.** Developmental Perspective

Ans:- B

173. The perspective which is concerned with characteristic changes that occur in people as they mature is known as:

- A.** Developmental Perspective
- B.** Biological Perspective
- C.** Humanistic Perspective
- D.** Psychoanalytic Perspective
- E.** Cognitive Perspective

Ans:- A

174. A person's sense of self is emphasized by:

- A.** Psychoanalytic Perspective
- B.** Biological Perspective
- C.** Developmental Perspective
- D.** Cognitive Perspective
- E.** Humanistic Perspective

Ans:- E

175. A key psychodynamic idea is that when unconscious impulses are unacceptable or when they make us anxious; to reduce anxiety, we use:

- A.** Defense Mechanisms
- B.** Super ego
- C.** Instincts
- D.** Dreams
- E.** Frustration

Ans:- A

176. The distinction between a clinical psychologist and a psychiatrist is that:

- A.** A clinical psychologist normally holds a Ph.D. or M.A. degree or Psy.D. (Doctor in Psychology) and a psychiatrist holds an MD degree
- B.** A clinical psychologist holds a Ph.D. degree in Psychology and a psychiatrist holds both Psy. D. degree and Ph.D. degree
- C.** A clinical psychologist holds a special degree in Psychology and a psychiatrist holds a Ph.D. degree in Psychology
- D.** A clinical psychologist has a special training in psychotherapy and a psychiatrist holds M.A. degree in Psychology
- E.** A clinical psychologist holds an M.A. degree in Psychology and a psychiatrist holds Ph.D. degree in Psychology

Ans:- A

177. The Subject "Psychology" was formally recognised in Germany in the year:

- A. 1789
- B. 1668
- C. 1879
- D. 1897
- E. 1968

Ans:- C

178. To study Abnormal Psychology means, to study mainly the nature of:

- A. Conscious Mind
- B. Unconscious Mind
- C. Subconscious Mind
- D. Normal Mind
- E. Abnormal Mind

Ans:- B

179. Sigmund Freud is regarded as the father of:

- A. Psychoanalysis
- B. Behaviourism
- C. Functionalism
- D. Gestalt Psychology
- E. Stnicturalism

Ans:- A

180. The unit of Sociology is the 'Group', whereas the unit of Psychology is the:

- A. Stimulus
- B. Individual
- C. Animal
- D. Institution
- E. None of the above

Ans:- B

181. The branch of psychology which (teals with the study of animal behaviour is known as:

- A. Social Psychology
- B. Abnormal Psychology
- C. Differential Psychology
- D. Comparative Psychology
- E. None of the alxrve

Ans:- D

182. The father of 'Experimental Psychology' is:

- A. Wilhelm Wundt

- B.** Sigmund Freud
- C.** C.G. Jung
- D.** E. B. Titchener
- E.** William James

Ans:- A

183. For the first time, the word 'Psychology' was used by:

- A.** Rudolf Goeckle
- B.** Sigmund Freud
- C.** William James
- D.** E. B. Titchener
- E.** C.G. Jung

Ans:- A

184. The literal meaning of 'Psychology' is:

- A.** Science of Behaviour
- B.** Science of Soul
- C.** Science of Consciousness
- D.** Science of Mind
- E.** Science of Temperament

Ans:- B

185. Rudolf Goekle used the word 'Psychology' for the first time in:

- A.** 1590 AD
- B.** 1950 AD
- C.** 1095 AD
- D.** 1509 AD
- E.** 1905 AD

Ans:- A

186. Psychology as the 'Science of Mind' was defined by:

- A.** Psychoanalysis
- B.** Behaviourists
- C.** Functionalists
- D.** Ancient Greek Philosophers
- E.** None of the above

Ans:- D

187. Scientific Psychology came into existence during:

- A.** 19th Century
- B.** 20th Century
- C.** 18th Century
- D.** 17th Century

E. 15th Century

Ans:- A

188. E. B. Titchener (1867-1927) defined 'Psychology' as the science of:

A. Soul

B. Mind

C. Experience

D. Conscious Experience

E. Behaviour

Ans:- D

189. J. B. Watson defined 'Psychology' as the science:

A. Soul

B. Behaviour

C. Mind

D. Consciousness

E. Experience

Ans:- B

190. Psychology was defined as the "Science of Behaviour" by:

A. Functionalists

B. Structuralists

C. Gestalt Psychologists

D. Behaviourists

E. None of the above

Ans:- D

191. Who defined 'Psychology' as the scientific study of activities of the organism in relation to its environment?

A. J. B. Watson

B. Sigmund Freud

C. C. G. Jung

D. William James

E. Woodworth

Ans:- E

192. Any systematically organised body of verified knowledge about a certain class of facts and events is known as:

A. Science

B. Experiment

C. Hypothesis

D. Fact

E. Theory

Ans:- A

193. Psychology is:

- A.** A social Science
- B.** A Natural Science
- C.** A Biological Science
- D.** Both Natural and Social Science
- E.** None of the above

Ans:- A

194. Behaviouristic School was established by:

- A.** William James
- B.** W. Kohler
- C.** J.B. Watson
- D.** K. Koffka
- E.** I. P. Pavlov

Ans:- C

195. The most effective method of studying psychology is:

- A.** Experimental Method
- B.** Observation Method
- C.** Introspection Method
- D.** Survey Method
- E.** Clinical Method

Ans:- A

196. Anything which evokes a response in the Organism is called:

- A.** Stimulus
- B.** Thing
- C.** Situation
- D.** Incidence
- E.** None of the above

Ans:- A

197. A systematic study of facts according to a reliable and correct method of study is called a:

- A.** Biological Study
- B.** Social Technique
- C.** Scientific Study
- D.** Methodology
- E.** None of the above

Ans:- C

198. That, which cannot be observed by another person, is called:

- A. Experience
- B. Activity
- C. Action
- D. Exercise
- E. Event

Ans:- A

199. The first psychological laboratory was established in Leipzig by Wilhelm Wundt in the year:

- A. 1789
- B. 1879
- C. 189
- D. 1798
- E. 1897

Ans:- B

200. "S-R" concept was first established by:

- A. J. B. Watson
- B. Wilhelm Wundt
- C. William James
- D. C. G. Jung
- E. I. P. Pavlov

Ans:- A

201. Which of the following is not associated with use of the scientific method in psychological research? [TY2.1]

- A. A commitment to producing knowledge through observation and experiment.
- B. A commitment to basing knowledge exclusively on common sense and opinion.
- C. A commitment to basing knowledge on empirical evidence.
- D. A commitment to discovering truth.
- E. A commitment to ensuring that findings are correctly interpreted.

Answer: B

202. Which of the following contribute to the development of knowledge and theory in psychology? [TY2.2]

- A. Evidence that supports a hypothesis.
- B. Evidence that contradicts a hypothesis.
- C. Evidence that tests a hypothesis.
- D. All of the above.
- E. Answers (a) and (c) only.

Answer: D

203. Which of the following statements is true? [TY2.3]

- A. If a finding is reliable it should be easy to replicate using the same procedures.
- B. If a finding is reliable it will also be valid.

- C. If a finding is reliable it will be important.
- D. If a finding is reliable it must be an example of good scientific practice.
- E. If a finding is reliable it has been correctly interpreted.

Answer: A

204. After reading some research on the topic of students' attitudes to university courses, Mark does a study to find out what students' favourite subject at university is. In this he finds that final-year psychology students prefer studying psychology to any other subject. On this basis he concludes that psychology is the most popular subject. However, Jane argues that this conclusion is wrong as the research actually shows that students prefer the subject they end up studying. What is the basis of her objection to Mark's research? [TY2.7]

- A. The study is invalid.
- B. The study is unreliable.
- C. The study is non-cumulative.
- D. The study is unparsimonious.
- E. None of the above.

Answer: A

205. If an experimental finding is valid, which of the following statements is true?

- A. It should be easy to replicate
- B. It supports a researcher's experimental predictions
- C. It supports a researcher's theory
- D. It occurred for the reason hypothesised by the researcher
- E. It will make a demonstrable contribution to scientific knowledge

Answer: D

206. Which of the following would not be of interest to a behaviourist?

- A. A person's reaction to a flashing light.
- B. Differences in various people's responses to a flashing light.
- C. The cognitive processes associated with reaction to a stimulus.
- D. The impact of a particular stimulus on behaviour.
- E. The different behaviours that arise from exposure to different stimuli.

Answer: A

207. Which of the following is a physiological measure?

- A. A measure of blood flow through a person's brain.
- B. Details of a person's family tree.
- C. A person's response to questions on a survey.
- D. A person's response to questions in an experiment.
- E. The preference a person shows for one stimulus rather than another.

Answer: A

208. Theory A explains phenomenon L, phenomenon M and phenomenon N using principles J and K. Theory B explains phenomenon L, phenomenon M, and phenomenon N using only principle K. Theory C explains phenomenon L and phenomenon N using principles J and K. Which of the

following statements is true?

- A.** Theory A is the most parsimonious.
- B.** Theory B is the most parsimonious.
- C.** Theory C is the most parsimonious.
- D.** Theory A and Theory C are equally and most parsimonious.
- E.** Theory A and Theory B are equally and most parsimonious.

Answer: B

209. "An argument in which the thing to be explained is presented as the explanation (e.g. where memory ability is used to explain memory performance)." What type of argument is this a glossary definition of?

- A.** Conceptual argument
- B.** Convenient argument
- C.** Causal argument
- D.** Circular argument
- E.** Casual argument

Answer: D

210. "The goal of accounting for the maximum number of empirical findings in terms of the smallest number of theoretical principles." This a glossary definition of which principle?

- A.** Maximization.
- B.** Parsimony.
- C.** Reliability.
- D.** Validity.
- E.** External validity.

Answer: B

211. "Formally, a statement about the causal relationship between particular phenomena (i.e. in the form 'A causes B'). This is usually derived from a particular theory and designed to be tested in research." Which construct is this a glossary definition of?

- A.** Prediction.
- B.** Deduction.
- C.** Hypothesis.
- D.** Conventional reasoning.
- E.** Deductive reasoning.

Answer: C

212. "Treating an abstraction as if it were a real concrete thing. In psychology this refers to the process and outcome of treating an empirical finding as if it were the straightforward expression of an underlying psychological process (e.g. seeing performance on intelligence tests as the expression of intelligence)." This a glossary definition of which process?

- A.** Reification.
- B.** Refutation
- C.** Concretization.

- D. False consensus.
- E. Experimental artifice.

Answer: A

213. Which of the following statements is not true? [TY3.1]

- A. Psychological measurement can involve the measurement of phenomena believed to be related to a given psychological state or process.
- B. Psychological measurement can involve the measurement of behaviour believed to result from a given psychological state or process.
- C. Psychological measurement can involve self-reports of behaviour believed to be related to a given psychological state or process.
- D. Psychological measurement can involve the self-reports of a sample drawn from a particular sub-population.
- E. Psychological measurement can involve direct examination of psychological states and processes.

Answer: E

214. A researcher conducts an experiment that tests the hypothesis that 'anxiety has an adverse effect on students' exam performance'. Which of the following statements is true? [TY3.2]

- A. Anxiety is the dependent variable, exam performance is the independent variable.
- B. Anxiety is the dependent variable, students are the independent variable.
- C. Anxiety is the independent variable, students are the dependent variable.
- D. Anxiety is the independent variable, exam performance is the dependent variable.
- E. Students are the dependent variable, exam performance is the independent variable.

Answer: D

215. An experimenter conducts a study in which she wants to look at the effects of altitude on psychological well-being. To do this she randomly allocates people to two groups and takes one group up in a plane to a height of 1000 metres and leaves the other group in the airport terminal as a control group. When the plane is in the air she seeks to establish the psychological well-being of both groups. Which of the following is a potential confound, threatening the internal validity of the study? [TY3.3]

- A. The reliability of the questionnaire that she uses to establish psychological health.
- B. The size of the space in which the participants are confined.
- C. The susceptibility of the experimental group to altitude sickness.
- D. The susceptibility of the control group to altitude sickness.
- E. The age of people in experimental and control groups.

Answer: B

216. What distinguishes the experimental method from the quasi-experimental method? [TY3.4]

- A. The scientific status of the research.
- B. The existence of an independent variable.
- C. The existence of different levels of an independent variable.
- D. The sensitivity of the dependent variable.

E. The random assignment of participants to conditions.

Answer: E

217. Which of the following is not an advantage of the survey/correlational method? [TY3.5]

- A.** It allows researchers to examine a number of different variables at the same time.
- B.** It allows researchers to examine the relationship between variables in natural settings.
- C.** It allows researchers to make predictions based on observed relationships between variables.
- D.** It allows researchers to explain observed relationships between variables.
- E.** It is often more convenient than experimental methods.

Answer: D

218. Which of the following statements is true? [TY3.6]

- A.** Case studies have played no role in the development of psychological theory.
- B.** Case studies have all of the weaknesses and none of the strengths of larger studies.
- C.** Case studies have none of the weaknesses and all of the strengths of larger studies.
- D.** Case studies should only be conducted if every other option has been ruled out.
- E.** None of the above.

Answer: E

219. An experimenter, Tom, conducts an experiment to see whether accuracy of responding and reaction time are affected by consumption of alcohol. To do this, Tom conducts a study in which students at university A react to pairs of symbols by saying 'same' or 'different' after consuming two glasses of water and students at university B react to pairs of symbols by saying 'same' or 'different' after consuming two glasses of wine. Tom predicts that reaction times will be slower and that there will be more errors in the responses of students who have consumed alcohol. Which of the following statements is not true? [TY3.7]

- A.** The university attended by participants is a confound.
- B.** The experiment has two dependent variables.
- C.** Reaction time is the independent variable.
- D.** Tom's ability to draw firm conclusions about the impact of alcohol on reaction time would be improved by assigning participants randomly to experimental conditions.
- E.** This study is actually a quasi- experiment.

Answer: C

220. What is an extraneous variable? [TY3.8]

- A.** A variable that can never be manipulated.
- B.** A variable that can never be controlled.
- C.** A variable that can never be measured.
- D.** A variable that clouds the interpretation of results.
- E.** None of the above.

Answer: D

221. Which of the following statements is true? [TY3.9]

- A.** The appropriateness of any research method is always determined by the research question and

the research environment.

- B.** Good experiments all involve a large number of participants.
- C.** Experiments should be conducted in laboratories in order to improve experimental control.
- D.** Surveys have no place in good psychological research.
- E.** Case studies are usually carried out when researchers are too lazy to find enough participants.

Answer: A

222. A piece of research that is conducted in a natural (non- artificial) setting is called: [TY3.10]

- A.** A case study.
- B.** A field study.
- C.** A quasi-experiment.
- D.** A survey.
- E.** An observational study.

Answer: B

223. “Measures designed to gain insight into particular psychological states or processes that involve recording performance on particular activities or tasks.” What type of measures does this glossary entry describe?

- A.** State measures.
- B.** Behavioural measures.
- C.** Physiological measures.
- D.** Activity measures.
- E.** Performance measures.

Answer: B

224. “An approach to psychology that asserts that human behaviour can be understood in terms of directly observable relationships (in particular, between a stimulus and a response) without having to refer to underlying mental states.” Which approach to psychology is this a glossary definition of?

- A.** Behaviourism.
- B.** Freudianism.
- C.** Cognitivism.
- D.** Radical observationism.
- E.** Marxism.

Answer: A

225. “The complete set of events, people or things that a researcher is interested in and from which any sample is taken.” What does this glossary entry define?

- A.** Total sample.
- B.** Complete sample.
- C.** Reference sample.
- D.** Reference group.
- E.** Population.

Answer: E

226. “Either the process of reaching conclusions about the effect of one variable on another, or the outcome of such a process.” What does this glossary entry define?

- A.** Causal inference.
- B.** Induction.
- C.** Deduction.
- D.** Inductive reasoning.
- E.** Inferential accounting.

Answer: A

227. “The extent to which the effect of an independent variable on a dependent variable has been correctly interpreted.” Which construct is this a glossary definition of?

- A.** Internal inference.
- B.** External inference.
- C.** External validity.
- D.** Holistic deduction.
- E.** Internal validity.

Answer: E

228. What is a manipulation check and what is its purpose? [TY4.1]

- A.** A dependent measure used to check that manipulation of an independent variable has been successful.
- B.** An independent variable used to check that measurement of a dependent variable has been successful.
- C.** A measure used to check that an experiment has an independent variable.
- D.** An independent measure used to check that the operationalization is relevant.
- E.** A dependent measure used to check that an independent variable is sufficiently relevant.

Answer: A

229. Which of the following statements is true? [TY4.2]

- A.** Dependent variables that do not measure the most relevant theoretical variable are pointless.
- B.** A study that employs dependent variables that are sensitive enough to detect variation in the independent variable is a quasi-experiment.
- C.** Unless dependent variables are sufficiently sensitive they will not reveal the effects of manipulating an independent variable.
- D.** Unless dependent variables are sufficiently relevant they will not reveal the effects of manipulating an independent variable.
- E.** None of the above.

Answer: C

230. A team of researchers is interested in conducting an experiment in order to test an important theory. In order to draw appropriate conclusions from any experiment they conduct, which of the following statements is true? [TY4.3]

- A.** The experimental sample must be representative of the population to which they want to

generalize the research on dimensions of age, sex and intelligence.

- B.** The experimental sample must be representative of the population to which they want to generalize the research on all dimensions.
- C.** The experimental sample must be representative of the population to which they want to generalize the research on all dimensions that can be measured in that population.
- D.** The experimental sample must be representative of the population to which they want to generalize the research on all dimensions relevant to the process being studied.
- E.** None of the above.

Answer: D

231. An experimenter conducts a study examining the effects of television violence on children's aggressiveness. To do this she asks 40 schoolboys who display normal levels of aggressiveness to watch one violent video a week for 40 weeks. On a standard measure of aggressiveness, which she administers both before and after each video over the 40-week treatment, she finds that the boys are much more aggressive in the last 10 weeks of the study. Without knowing anything more about this study, which of the following can be ruled out as a threat to the internal validity of any conclusions she may seek to draw? [TY4.4]

- A.** History effects.
- B.** Maturation effects.
- C.** Mortality effects.
- D.** Regression to the mean.
- E.** Testing effects.

Answer: D

232. Which of the following can increase a researcher's ability to generalize findings from a particular piece of research? [TY4.5]

- A.** Cheating.
- B.** Experimenter bias.
- C.** Deception and concealment.
- D.** Participants' sensitivity to demand characteristics.
- E.** The use of unrepresentative samples.

Answer: C

233. A researcher conducts an experiment to investigate the effects of positive mood on memory. Mood is manipulated by giving participants a gift. In the experiment, before they are given a memory test, half of the participants are randomly assigned to a condition in which they are given a box of chocolates, and the other half are given nothing. Which of the following statements is not true? [TY4.6]

- A.** Mood is a between-subjects variable.
- B.** The experiment has two conditions.
- C.** The experiment includes a control condition.
- D.** The independent variable is manipulated within subjects.
- E.** Experimental control eliminates potential threats to the internal validity of the experiment.

Answer: D

234. Which of the following is a researcher's overall objective in using matching? [TY4.7]

- A.** To control for extraneous variables in quasi- experimental designs.
- B.** To increase participants' enjoyment of correlational research.
- C.** To ensure that participants are randomly assigned to conditions.
- D.** To ensure that groups of participants do not differ in age and sex.
- E.** To ensure that groups of participants do not differ in intelligence.

Answer: A

235. Which of the following threats to validity is the most difficult to control by improving experimental design? [TY4.8]

- A.** Maturation effects.
- B.** Cheating by experimenters.
- C.** History effects.
- D.** Sensitivity to demand characteristics.
- E.** Experimenter bias.

Answer: B

236. Some researchers decided to conduct an experiment to investigate the effects of a new psychological therapy on people's self-esteem. To do this they asked all their clients who were currently receiving treatment for low self- esteem to continue using an old therapy but treated all their new clients with the new therapy. A year later they found that clients subjected to the new therapy had much higher self-esteem. Which of the following statements is true? [TY4.9]

- A.** The greater self-esteem of the clients exposed to the new therapy resulted from the superiority of that therapy.
- B.** The greater self-esteem of the clients exposed to the new therapy resulted from the fact that the new clients were more optimistic than those who were previously receiving treatment.
- C.** The greater self-esteem of the clients exposed to the new therapy resulted from the fact that the new clients were less disillusioned with therapy than those who were previously receiving treatment.
- D.** The greater self-esteem of the clients exposed to the new therapy resulted from the fact that the new clients were more intelligent than those who were previously receiving treatment.
- E.** It is impossible to establish the validity of any of the above statements based on the results of this study.

Answer: E

237. An experimenter conducts an experiment to see whether people's reaction time is affected by their consumption of alcohol. To do this, she conducts a study in which students from University A describe symbols as 'red' 'green' or 'blue' before they consume two glasses of wine and students from University B describe symbols as 'red' 'green' or 'blue' after they consume two glasses of wine. She hypothesizes that reaction times will be slower and that there will be more errors in the responses of students who consume alcohol before reacting to the symbols.

Which of the following statements is false?

- A.** It is appropriate to analyse the results using independent sample t-tests

- B.** Type of University is a potential experimental confound
- C.** The experiment has two dependent variables
- D.** The experiment has three independent variables
- E.** The experiment has a between-subjects design.

Answer: D

238. “Both (a) the process of constructing experiments and (b) the resulting structure of those experiments.” What research feature is this a glossary definition of?

- A.** Experimental design.
- B.** Constructive design.
- C.** Experimental structuration.
- D.** Solidification.
- E.** Experimental procedure.

Answer: A

239. “A system for deciding how to arrange objects or events in a progressive series. These are used to assign relative magnitude to psychological and behavioural phenomena (e.g. intelligence or political attitudes).” What is this a glossary definition of?

- A.** A scale.
- B.** A measure.
- C.** A measurement.
- D.** A callibration.
- E.** A test.

Answer: A

240. “The principle that the more relevant a dependent variable is to the issue in which a researcher is interested, the less sensitive it may be to variation in the independent variable.” What is this a glossary definition of?

- A.** Systematic desensitization.
- B.** Random variation.
- C.** Meaurement error.
- D.** Relevance–sensitivity trade- off.
- E.** Inferential uncertainty.

Answer: D

241. “The extent to which a research finding can be generalized to other situations.” What is this a glossary definition of?

- A.** External validity
- B.** Generalization.
- C.** Induction.
- D.** Extendability.
- E.** Empirical applicability.

Answer: A

242. “Systematic change to an independent variable where the same participants are exposed to different levels of that variable by the experimenter.” What procedure is this a glossary definition of?

- A.** Random assignment.
- B.** Within-subjects manipulation.
- C.** Between-subjects manipulation.
- D.** Variable assignment.
- E.** Experimenter manipulation.

Answer: B

243. Surveys are preferred in some areas of psychology for which of the following reasons? [TY5.1]

- A.** They are usually cheaper.
- B.** They allow researchers to infer causal relationships.
- C.** They are more scientific because similar methods are used in astronomy and geology.
- D.** It is often impossible to manipulate the independent variables the researchers are interested in.
- E.** They use randomization to achieve random sampling.

Answer: D

244. A television news programme shows a murder case including video footage of the grieving parents of the victim. The television station then conducts an opinion poll in which it asks viewers to phone in and vote for or against the death penalty for murder. The results of the survey show that 83% of the 20,000 viewers who ring in are in favour of the death penalty. Which of the following statements is true? [TY5.2]

- A.** The results of this study can only be generalized to people who watch news programmes.
- B.** The results of this study can only be generalized to people who own a television.
- C.** The results of this study can only be generalized to people who care about the death penalty.
- D.** The results of this study can only be generalized when we know much more about the sampling method.
- E.** The results of this study can only be generalized if the bias created by showing the grieving parents is eliminated.

Answer: D

245. Which of the following can be a threat to the internal validity of longitudinal studies? [TY5.3]

- A.** Testing effects.
- B.** The IQ of the participants.
- C.** Sample size.
- D.** Maturation effects.
- E.** Both (a) and (d).

Answer: E

246. Which of the following statements is true? [TY5.4]

- A.** Questionnaires should not ask people to provide personal information.
- B.** Questionnaires should aim to obtain as much information from people as possible.

- C.** The order of items in a questionnaire is not particularly important.
- D.** Questionnaires should contain a mixture of open-ended and forced-choice items.
- E.** None of the above.

Answer: E

247. In a survey where the results are obtained from a representative random sample of a population, which of the following is true? [TY5.5]

- A.** The results can be generalized to that population.
- B.** The sample can only be obtained by simple random sampling.
- C.** The sampling procedure is similar to that used in most experimental research.
- D.** Both (a) and (b).
- E.** None of the above.

Answer: A

248. Which of the following statements about convenience sampling is true? [TY5.6]

- A.** It should always be avoided.
- B.** It is appropriate providing the sample size is extremely large.
- C.** It can be used under some circumstances.
- D.** It is a non-probability sampling technique.
- E.** Both (c) and (d).

Answer: E

249. Which of the following is likely to be a problem for non-reactive studies that use non-obtrusive measures? [TY5.7]

- A.** Social desirability effects.
- B.** Defining the probability of maturation for each member of the population.
- C.** Appropriate operationalization of variables.
- D.** Behavioural traces.
- E.** Both (c) and (d).

Answer: C

250. A team of researchers conducts a study in which they ask boys and girls from a local high school to complete a battery of psychological tests that investigate their social skills and levels of sociability. Ten years later they ask boys and girls from the same school to perform the same tests. Which of the following statements is false? [TY5.8]

- A.** The study has a successive cross-sectional design.
- B.** The research is invalid because developmental studies should not include psychological tests.
- C.** Testing effects are eliminated by using a between-subjects design.
- D.** Mortality effects are eliminated by using a between-subjects design.
- E.** Maturation effects are eliminated by using a between-subjects design.

Answer: B

251. Which of the following statements is most correct?

- A.** The use of unobtrusive measures in surveys helps deal with reactivity.
- B.** The use of unobtrusive measures in surveys helps deal with standardization.
- C.** The use of unobtrusive measures in surveys helps deal with social desirability.
- D.** The use of unobtrusive measures in surveys helps deal with reactivity and social desirability.
- E.** The use of unobtrusive measures in surveys helps deal with reactivity, standardization and social desirability.

Answer: D

252. A researcher conducts a research project in which she surveys all the members of her local golf club. This is most likely to be an example of which of the following?

- A.** Purposive sampling.
- B.** Random sampling.
- C.** Simple random sampling.
- D.** Split ballot sampling.
- E.** None of the above.

Answer: A

253. “The extent to which people’s behaviour appears acceptable to other people. If behaviour is affected by people trying to behave in ways that they perceive to be desirable to the researcher then this threatens both the internal and external validity of research.” What construct does this glossary entry define?

- A.** Social desirability.
- B.** Self-presentation.
- C.** Deception.
- D.** Experimenter bias.
- E.** Participant bias.

Answer: A

254. “A listing of all members of the population of interest.” What is this a glossary definition of?

- A.** A sample brochure.
- B.** A population directory.
- C.** A sampling directory.
- D.** A sampling frame.
- E.** A full sample specification.

Answer: D

255. “A preliminary piece of research designed to ‘road-test’ various design elements (e.g. independent variables, dependent variables, details of procedure), in order to establish their viability and utility prior to the investment of time and money in a full study.” What type of study does this glossary entry define?

- A.** A sampling study.
- B.** A replication study.
- C.** A pre-test.

- D. A pilot study.
- E. A viability study.

Answer: D

256. "Studies where the same sample of participants is measured on more than one occasion." What type of study is this a glossary definition of?

- A. Longitudinal surveys
- B. Carry-over surveys
- C. Repeated-measures surveys
- D. Cohort surveys
- E. Population censuses

Answer: A

257. "Questionnaire items where a respondent has to select one response from two or more options." What type of response is this a glossary definition of?

- A. Selective response.
- B. Forced-choice response.
- C. Free response.
- D. Likert-scale response.
- E. Double-barrelled response.

Answer: B

258. A researcher conducts an experiment in which she assigns participants to one of two groups and exposes the two groups to different doses of a particular drug. She then gets the participants to learn a list of 20 words and two days later sees how many they can recall. In the experiment the dependent measure is simply the number of words recalled by each participant. What type of dependent measure is this? [TY6.1]

- A. Nominal.
- B. Ordinal.
- C. Interval.
- D. Ratio.
- E. None of the above.

Answer: D

259. A researcher conducts a study to find out how many times people had visited a doctor in the previous year. Five people participated in the study and the numbers of visits they had made were 2, 5, 7, 4 and 2. Which of the following statements is true? [TY6.2]

- A. The mean number of visits is 2.
- B. The median number of visits is 2.
- C. The median number of visits is 4.
- D. The modal number of visits is 4.
- E. The modal number of visits is 7.

Answer: C

260. Which of the following statements is most likely to be true if the distribution of a variable is severely skewed? [TY6.3]

- A.** The mean will be the best measure of central tendency.
- B.** The median will be as misleading as the mean.
- C.** The mode will no longer be the most common response.
- D.** The median will be the best measure of central tendency.
- E.** The mode will be the best measure of central tendency.

Answer: D

261. If X is a variable, which of the following is not measured in the same units as X ? [TY6.4]

- A.** The mean of X .
- B.** The range of X .
- C.** The standard deviation of X .
- D.** The variance of X .
- E.** The difference between minimum and maximum values of X .

Answer: D

262. If scores on a variable are normally distributed, which of the following statements is false?

- A.** All scores on the variable will have been observed with equal frequency.
- B.** The distribution of scores is symmetrical about the mean.
- C.** Similar distributions are commonly observed in data obtained from psychological research.
- D.** There will be relatively few extreme scores.
- E.** The mean, median and modal scores will be equal.

Answer: A

263. Which of the following is not a measure of central tendency?

- A.** The mean of a distribution.
- B.** The mean squared deviation of some data.
- C.** The modal value of a set of values.
- D.** The median response on a scale.
- E.** An average score.

Answer: B

264. The shaded bars in the histogram below represent the times (rounded to the nearest 10 milliseconds) that 50 people take to react to a loud noise. Which of the following statements is not true?

- A.** The distribution of reaction times is negatively skewed.
- B.** The modal reaction time is 240 ms.
- C.** The median reaction time is greater than 240 ms.
- D.** The mean reaction time will be greater than the modal reaction time.
- E.** The mean is an ambiguous measure of central tendency.

Answer: A

265. 'Root mean squared deviate' could be used as another name for which measure of dispersion?

- A.** Range.
- B.** Skewness
- C.** Variance.
- D.** Standard deviation.
- E.** Squared deviation from the root.

Answer: D

266. A researcher measures a variable whose distribution she observes to be normally distributed. On this basis which of the following statements is most likely to be true?

- A.** The distribution's mean will be greater than its median and mode.
- B.** The distribution's median will be greater than its mean and mode.
- C.** The distribution's mean will be similar to its median and mode.
- D.** The distribution's mean will be less than its median and mode.
- E.** The distribution's mean will be greater than its median but less than its mode.

Answer: C

267. Which of the following is a measure of central tendency?

- A.** The variance in scores obtained on a dependent measure.
- B.** The mean deviation of some data.
- C.** Standard deviation.
- D.** The range of a set of values.
- E.** None of the above.

Answer: E

268. The SPSS output below is from a study in which the scores for the variable "Survey_Point" could vary between 0 and 30. Looking at the distribution of frequencies, which of the following statements is true?

- A.** The distribution of scores is positively skewed.
- B.** The distribution of scores is negatively skewed.
- C.** There is a uniform distribution of scores.
- D.** The data have a bimodal distribution.
- E.** None of the above.

Answer: B

269. The SPSS output below is from a study in which the scores for the variable "Survey_Point" could vary between 0 and 30. Looking at the distribution of frequencies, which of the following statements is true?

- A.** The mean will be higher than the mode.
- B.** The mode will be higher than the mean.
- C.** The mean will be the same as the mode.
- D.** The median will be lower than the mean.
- E.** The median will be higher than the mode.

Answer: B

270. "A variable that can be treated as if there were no breaks or steps between its different levels (e.g., reaction time in milliseconds)." What type of variable is this a glossary definition of?

- A. A logical variable.
- B. A discrete variable.
- C. A scale variable.
- D. A continuous variable.
- E. A measurement variable.

Answer: D

271. "A measure reflecting distinct categories that have different names but the categories are not numerically related to one another." What type of measure is this a glossary definition of?

- A. An ordinal measure.
- B. A nominal measure.
- C. A scale measure.
- D. A desperate measure.
- E. A ratio measure.

Answer: B

272. "The spread of scores across levels of a variable." What is this a glossary definition of?

- A. Distribution.
- B. Range.
- C. Variance.
- D. Covariance.
- E. Standard deviation.

Answer: A

273. "Scores that are very different from the typical value for a distribution. Because they are very different from the central tendency of a distribution they contribute a great deal to the amount of dispersion in the distribution." What does this glossary entry define?

- A. Deviates.
- B. Mean deviates.
- C. Outliers
- D. Non-respondents.
- E. Missing data.

Answer: C

274. Which of the following statements is/are true about the t- distribution? [TY8.1]

- A. Its shape changes with the number of degrees of freedom.
- B. Its expected value is 0.
- C. It can be used to test differences between means providing that the population standard deviation is known.

- D. Both (a) and (b).
- E. All of the above.

Answer: D

275. The mean height of a sample of 100 men in 2014 is 180 cm, with a standard deviation of 10 cm. The mean for the same population in 1914 was 170 cm. Imagine that we want to use the 2014 sample to test whether the height of the population has changed over the intervening 100 years. Which of the following statements is true? [TY8.2]

- A. The number of degrees of freedom for the test in this case is 99.
- B. The t-value is 10.0.
- C. The t-value corresponds to a very small probability that a random process of taking samples of 100 men from a population similar to the 1914 population would produce a sample of 180 cm or taller.
- D. All of the above.
- E. Answers (a) and (b) only.

Answer: D

276. Which of the following is not relevant to a between- subjects t-test? [TY8.3]

- A. The pooled variance estimate.
- B. A difference score D .
- C. An information term.
- D. A sampling distribution of the differences between means.
- E. A probability that a difference of the same size or larger could be obtained by a random process.

Answer: B

277. If an experimenter conducts a t- test to see whether the responses of participants in a control group differ from those of an experimental group, which of the following outcomes will yield the highest t- value? [TY8.4]

- A. If there are 10 participants in each condition and the difference between the mean responses of the control group and the experimental group is 2 and both have standard deviations of 1.
- B. If there are 10 participants in each condition and the difference between the mean responses of the control group and the experimental group is 2 and both have standard deviations of 2.
- C. If there are 20 participants in each condition and the difference between the mean responses of the control group and the experimental group is 1 and both have standard deviations of 1.
- D. If there are 20 participants in each condition and the difference between the mean responses of the control group and the experimental group is 2 and both have standard deviations of 1.
- E. If there are 20 participants in each condition and the difference between the mean responses of the control group and the experimental group is 2 and both have standard deviations of 2.

Answer: D

278. Which of the following must be true of a statistically significant result of a t-test? [TY8.5]

- A. The probability that a difference at least as large as the observed difference could be produced by a particular random process will be less than the alpha level.
- B. The obtained value of t will exceed the alpha level.

- C. The rejection regions must be significantly different from each other.
- D. Both (a) and (c).
- E. Alpha must be set at .05.

Answer: A

279. Researchers conduct a t-test and obtain a p-value of .0012. Which of the following is an appropriate conclusion on the basis of the information provided? [TY8.6]

- A. The result is significant.
- B. The effect size will be large.
- C. Both (a) and (b).
- D. A 99% confidence interval for the differences between the means will include the observed difference.
- E. A 95% confidence interval for the differences between the means will not include the observed difference.

Answer: E

280. Researchers conduct a t-test to compare two groups and find that one of the groups has a much larger standard deviation than the other. Which of the following statements is true? [TY8.7]

- A. The variances are robust.
- B. The assumption of equal variance may have been violated.
- C. The researchers should make sure that their distributions are free of parameters.
- D. The standard deviations are not normal.
- E. Both (b) and (d).

Answer: B

281. If an experimenter were to conduct an experiment in which participants were randomly assigned to either a control condition or an experimental condition, which of the following statements would be true? [TY8.8]

- A. It will be appropriate to analyse results using a between-subjects t-test.
- B. Any statistical analysis will be based on pairs of responses.
- C. If a t-test is performed to analyse the results, it will have $n - 1$ degrees of freedom.
- D. The experiment involves two related samples.
- E. Both (a) and (c).

Answer: A

282. John, a second-year psychology student, is using the hypothesis- testing approach and an alpha level of .05 to examine a difference between two means. He discovers that this difference is associated with a t-value of 3.46. If the critical t- value with $\alpha = .05$ is 2.056 what should he conclude? [TY8.9]

- A. That the difference between the means is statistically significant.
- B. That the alpha level is too high.
- C. That the alpha level is not high enough.
- D. That the experiment did not contain enough participants to draw a strong conclusion.
- E. That no conclusion can be made about the nature of the underlying populations.

Answer: A

283. Which of the following suggests that the assumptions underlying a between-subjects t-test have been violated? [TY8.10]

- A.** Evidence that the dependent variable is normally distributed.
- B.** Evidence that the samples being compared have unequal variances.
- C.** Evidence that the manipulation of the independent variable had no effect.
- D.** Evidence that sampling was random, and that scores were independent.
- E.** None of the above.

Answer: B

284. Which of the following increases the likelihood of a Type II error when conducting a t-test? [TY8.11]

- A.** A high alpha level.
- B.** A large sample size.
- C.** High power.
- D.** Low random error.
- E.** A small difference between means.

Answer: E

285. An experimenter conducts an experiment using a control group containing 8 subjects and an experimental group containing 8 subjects. How many degrees of freedom are there in this experimental design?

- A.** 7
- B.** 8
- C.** 14
- D.** 15
- E.** 16

Answer: C

286. The graph below was generated by SPSS and plots participants' scores on the variable "Survey_Point" which can vary between 0 and 30. Looking at this graph, what might make these data inappropriate to analyse using a t- test

- A.** The assumption of independence is violated.
- B.** The assumption of normality is violated.
- C.** The assumption of equal variance is violated.
- D.** Both (a) and (b).
- E.** Both (b) and (c).

Answer: B

287. "The probability, as revealed by a statistical test, that a random process (involving taking random samples of a particular size from a particular population) could produce some outcome." What is this a glossary definition of?

- A.** Random error

- B. Sampling error
- C. The random value
- D. The p-value
- E. The q-value

Answer: D

288. “An outcome where the probability that an effect at least as large as that observed could be produced by a random process is less than a predetermined alpha level. This means that it is implausible that a random process could have produced the effect.”

Which construct is this a glossary definition of?

- A. Statistical significance.
- B. Power.
- C. Type I error.
- D. Type II error .
- E. Random error.

Answer: A

289. “The mistaken idea that random events are not independent. A gambler may believe that a long run of good or bad luck has to change. The gambler’s fallacy arises from a misunderstanding of the law of large numbers. The idea that a random process will behave in a predictable way on average over a long run of observations can be misunderstood to imply that there is ‘a law of averages’ that serves to change the probability of random events based on past events.

However, coins, dice and other things that generate random outcomes do not have memories.” What type of fallacy is this a glossary definition of?

- A. The significance fallacy.
- B. The gambler’s fallacy.
- C. The causal fallacy.
- D. The operational fallacy.
- E. The psychological fallacy.

Answer: B

290. Which of the following statements is true? [TY9.1

- A. A negative correlation is the same as no correlation.
- B. Scatterplots are a very poor way to show correlations.
- C. If the points on a scatterplot are close to a straight line there will be a positive correlation.
- D. Negative correlations are of no use for predictive purposes.
- E. None of the above.

Answer: E

291. If a calculation of Pearson’s r yields a value of $-.96$, which of the following statements is false? [TY9.2]

- A. The observed correlation between variables is negative.
- B. There is a small amount of negative covariance between variables relative to random error.
- C. A high score on one variable is associated with a low score on the other.

- D. This correlation is useful for predictive purposes.
- E. Points on a scatterplot would resemble a straight line.

Answer: B

292. As part of a psychology assignment Kate has to calculate Pearson's r to measure the strength of association between two variables. She finds that $r = -.2$ and that this is significant at her selected alpha level of .05. What should she conclude? [TY9.3]

- A. That there is a significant but small relationship between the two variables.
- B. That there is a non-significant but large relationship between the variables.
- C. That there is a significant and moderate relationship between the variables.
- D. That the two variables are unrelated.
- E. That variation in one variable is associated with most of the variation in the other.

Answer: A

293. The correlational fallacy refers to which of the following? [TY9.4]

- A. The idea that a correlation can be statistically significant without being psychologically meaningful.
- B. The idea that a strong correlation between variables does not mean that one predicts the other.
- C. The idea that a correlation between variables does not mean that one variable is responsible for variation in the other.
- D. The idea that correlation does not justify prediction.
- E. Both (a) and (c)

Answer: C

294. "Effects which reflect the impact of one independent variable averaged across all levels of other independent variables, rather than the impact of an interaction between two or more independent variables." What is this a glossary definition of?

- A. Main effects.
- B. Average effects.
- C. Significant effects.
- D. Non-interaction effects.
- E. Isolation effects.

Answer: A

295. A group of researchers conducts some research in which they identify a significant positive correlation ($r = .42$) between the number of children people have and their life satisfaction. Which of the following is it inappropriate to conclude from this research? [TY9.5]

- A. That having children makes people more satisfied with their life.
- B. That someone who has children is likely to be happier than someone who does not.
- C. That the causes of life satisfaction are unclear.
- D. That the consequences of having children are unclear.
- E. That it is possible to predict someone's life happiness partly on the basis of the
- F. number of children they have.

Answer: A

296. Which of the following statements is true of the problem of restricted range? [TY9.6]

- A.** Restricted range can reduce the size of correlations.
- B.** Restricted range can lead to a violation of the assumption of bivariate normality.
- C.** Restricted range can produce regression to the mean.
- D.** All of the above.
- E.** Answers (a) and (b) only.

Answer: D

297. If an experimenter observes a correlation of -1 between two variables, which of the following is false? [TY9.7]

- A.** One variable is completely predictive of the other.
- B.** One variable is completely responsible for variation in the other. a. Knowledge of the value of one variable allows one to know with certainty the value of the other.
- C.** A higher score on one variable is associated with a lower score on the other.
- D.** All the variation in one variable is associated with variation in the other.

Answer: B

298. If the correlation between people's wealth and a measure of their psychological well-being is $.40$, how much of the variation in their scores on the well-being measure will be associated with variation in their wealth? [TY9.8]

- A.** 60%
- B.** 40%
- C.** 16%
- D.** 4%
- E.** It is impossible to say without information about how psychological well-being is defined.

Answer: C

299. A researcher conducts some research in which they identify a significant positive correlation ($r = .42$) between the number of children a person has and their life satisfaction. Which of the following is it inappropriate to conclude from this research?

- A.** That having children makes people more satisfied with their life.
- B.** That someone who has children is likely to be more happy than someone who doesn't.
- C.** That the causes of life satisfaction are unclear.
- D.** That the consequences of having children are unclear.
- E.** That it is possible to predict someone's life happiness partly on the basis of the number of children they have.

Answer: A

300. A researcher conducts a survey with 221 participants who each complete 24 measures designed to assess the impact of social and psychological factors (such as demands, social support and role clarity) on stress in the workplace. As part of her analysis she investigates the correlations between pairs of these variables. How many degrees of freedom will her analysis have?

- A.** 221

- B. 220
- C. 219
- D. 24
- E. 23

Answer: C

301. "A graph plotting the scores on one variable against the scores on another." What type of graph is this a glossary definition of?

- A. A line graph
- B. A bar graph
- C. A scatterplot
- D. An angiogram
- E. A scattergram

Answer: C

302. "A relationship between two variables that can be described by a straight line. The equation for such a line is $y = a + bx$, where b is the slope of the line (its gradient) and a is the y intercept (where it cuts the vertical axis)." Which type of relationship is this a glossary definition of?

- A. A straight-line relationship
- B. An $a + b$ relationship
- C. A bx relationship
- D. A curvilinear relationship
- E. A short-term relationship

Answer: A

303. "A measure of the degree of linear association between two variables." What is this a glossary definition of?

- A. A correlation coefficient.
- B. A covariance coefficient.
- C. Covariance.
- D. A product-moment coefficient.
- E. A linear coefficient.

Answer: A

304. "The amount of variation in one variable associated with variation in another variable (or variables). In the bivariate case this is given by r^2 ." What is this a glossary definition of?

- A. Variance.
- B. Covariance.
- C. Common variance.
- D. Linear correlation.
- E. Estimated variance.

Answer: C

305. “A barrier to the correct interpretation of results that arises when the range of scores is limited because they are clustered in the region of the maximum scale value.” What specific type of effect is this a glossary definition of?

- A.** Restricted range effect.
- B.** Maximum value effect.
- C.** Floor effect.
- D.** Ceiling effect.
- E.** Doppler effect

Answer: D

306. Which of the following is a pooled variance estimate that constitutes the denominator of an F-ratio? [TY10.1]

- A.** The between-cells mean square (MS_B).
- B.** The mean of the sampling distribution.
- C.** The sum of the deviations from the grand mean.
- D.** The grand mean.
- E.** The within-cells mean square (MS_W).

Answer: E

307. Which of the following statements is true? [TY10.2]

- A.** In one-way ANOVA the total sum of squares comprises two main sources of variance: within-groups variance and between-groups variance. Each has the same number of degrees of freedom.
- B.** In one-way ANOVA the total sum of squares comprises two main sources of variance: within-groups variance and between-groups variance. Each has its own number of degrees of freedom.
- C.** In one-way ANOVA the total sum of squares comprises three main sources of variance: within-groups variance, between-groups variance and error variance. Each has the same number of degrees of freedom.
- D.** In one-way ANOVA the total sum of squares comprises three main sources of variance: within-groups variance, between-groups variance and information variance. Each has the same number of degrees of freedom.
- E.** In one-way ANOVA the total sum of squares comprises three main sources of variance: within-groups variance, between-groups variance and information variance. Each has its own number of degrees of freedom.

Answer: B

308. What is the point of calculating the value of η^2 in relation to particular F- and p-values? [TY10.2]

- A.** η^2 is a hypothesis-testing measure that can tell us whether a particular F-value is significant.
- B.** η^2 is the square of α and can tell us whether a particular p-value is significant.
- C.** η^2 is a measure of effect size that can tell us whether a particular F-value is significant.
- D.** η^2 is a measure of effect size that can tell us whether a particular p-value is significant.
- E.** η^2 is a measure of effect size that can tell us how much variance a particular effect accounts for.

Answer: E

309. A researcher, Isobel, conducts one-way analysis of variance in which she compares the final marks of students who have studied psychology at one of five different institutions, A, B, C, D and E. The study looks at the marks of 100 students, 20 from each institution. On the basis of a given theory, the researcher plans to make four comparisons: between A and B, A and C, C and D, and C and E. Three other researchers make the following observations:

X: 'If Isobel used an experimentwise alpha level of .01, a Bonferroni adjustment would mean that each of these tests had an alpha level of .0025.'

Y: 'If Isobel used an experimentwise alpha level of .05, a Bonferroni adjustment would mean that each of these tests had an alpha level of .0025.'

Z: 'If Isobel used an experimentwise alpha level of .05, a Bonferroni adjustment would mean that each of these tests had an alpha level of .0125.'

Who is correct? [TY10.4]

- A. Only X.
- B. Only Y.
- C. Only Z.
- D. X and Y.
- E. X and Z.

Answer: E

310. An experimental psychologist conducts a study examining whether the speed with which two shapes can be identified as similar or different depends on whether the stimuli are (a) of equal or unequal size and (b) symmetrical or asymmetrical. The mean reaction times for the four cells of the design are as follows: equal symmetrical (M = 132 ms), unequal symmetrical (M = 148 ms), unequal asymmetrical (M = 142 ms), unequal asymmetrical (M = 182 ms). Which of the following is true? [TY10.5]

- A. A line graph in which these data are plotted suggests that there might only be a main effect for size.
- B. A line graph in which these data are plotted suggests that there might only be a main effect for symmetry.
- C. A line graph in which these data are plotted suggests that there might only be a main effect for size and an interaction between size and symmetry.
- D. A line graph in which these data are plotted suggests that there might only be a main effect for symmetry and an interaction between size and symmetry.
- E. A line graph in which these data are plotted suggests that there might be main effects for size and symmetry and an interaction between size and symmetry.

Answer: E

311. Which of the following statements is false? [TY10.6]

- A. One difference between ANOVA and t-tests is that ANOVA allows researchers to compare responses of more than two groups.
- B. One difference between ANOVA and t-tests is that ANOVA does not make assumptions about homogeneity, normality and independence.
- C. One difference between ANOVA and t-tests is that ANOVA can be used to examine

simultaneously the impact of more than one variable.

- D. One difference between ANOVA and t-tests is that ANOVA is based on analysis of the ratios of variances.
- E. One difference between ANOVA and t-tests is that ANOVA uses two separate degrees of freedom (one for between-cells variance, one for within-cells variance).

Answer: B

312. A researcher conducts a study examining the impact of social support on depression in which he studies how four independent groups that each receive a different type of social support (financial, emotional, intellectual, none) react to a stressful experience. There are 20 people in each group. Which of the following statements is true? [TY10.7]

- A. There are 4 degrees of freedom for the between-cells variance.
- B. There are 78 degrees of freedom for the within-cells variance.
- C. If ANOVA yielded a between- groups F-value of -2.18 this would be significant with alpha set at $.05$.
- D. If ANOVA yielded a between- groups F-value of 0.98 this would be significant with alpha set at $.01$.
- E. None of the above statements is true.

Answer: E

313. Which of the following statements about the F-distribution is false? [TY10.8]

- A. The distribution is asymmetrical.
- B. The distribution is one-tailed.
- C. Higher values of F are associated with a higher probability value.
- D. The distribution is positively skewed.
- E. If the amount of between-cells variance is equal to the amount of within-subjects variance, the value of F will be 1.00 .

Answer: C

314. The SPSS ANOVA output below is from a study in which participants were randomly assigned to one of four conditions in which they were given different instructions to encourage them to continue. Which of the following statements is true? There is no possibility at all that the results are due to chance.

- A. It would be useful to supplement the p-value with a measure of effect size.
- B. With an alpha level of $.01$, ANOVA reveals a significant effect for Instruction.
- C. As groups are randomly assigned, we need to compute a z-score in order to gauge the size of these effects relative to chance.
- D. Both (a) and (b).

Answer: B

315. The SPSS ANOVA output below is from a study in which participants were randomly assigned to one of four conditions in which they were given different instructions to encourage them to continue. Which of the following statements is true?

- A. ANOVA shows that there was no effect for Instruction.

- B.** With an alpha level of .05, ANOVA reveals a significant effect for the Instruction.
- C.** With an alpha level of .01, ANOVA reveals a significant effect for Instruction.
- D.** With an alpha level of .05, ANOVA reveals a significant effect for Intercept
- E.** With an alpha level of .01, ANOVA reveals a significant effect for Intercept.

Answer: B

316. "A hypothetical model in which mean responses differ across the conditions of an experimental design. This represents an alternative to the null hypothesis that the mean response is the same in all conditions." What is this a glossary definition of?

- A.** Hypothetical model.
- B.** Hypothetical difference model.
- C.** Difference model.
- D.** Effects model.
- E.** Experimental model.

Answer: D

UNIT – 2

EMERGENCE OF PSYCHOLOGY

WHAT IS PSYCHOLOGICAL THOUGHT IN SOME MAJOR EASTERN SYSTEMS: BHAGAVAD GITA, BUDDHISM, SUFISM AND INTEGRAL YOGA ?

THE PSYCHOLOGICAL THOUGHT IN SOME MAJOR EASTERN SYSTEMS: BHAGAVAD GITA, BUDDHISM, SUFISM AND INTEGRAL YOGA

The Bhagavad Gita is the best philosophical confluence of karma, bhakti and gyan yoga as Krishna's solution to Arjuna's problem is comprehensive, involving the behavioral (karma yoga), the emotional (bhakti yoga) and the intellectual (gyan yoga). The religious and philosophical importance of the Gita is well known. It is not only a well organized form of Indian life but also is considered a humanistic religion of the world.

Its universal importance is established by its translation in all recognized languages of the world. Some scholars consider it as greatest ideal of dharmashastra, some of ethics and of philosophy. A depth study of the Gita affirms that it embodies all the above mentioned aspects. Therefore, all these opinions of the scholars are complementary to each other. The philosophical approach does establish its importance but it has another approach that is psychological.

Psychological depiction is not confined to any race, time or space. It is perennial source of inspiration for all humans in all times. Gita darshan has been stabilized on the ground of psychology. Therefore, it is a unique achievement in the field of psychology.

After entering the war field, Arjuna's hesitation for performing his duties in place of showing enthusiasm for war, is obviously depiction of psychological situation. All individuals are caught into social and religious bondages. These bondages become part of life as these are inborn and cannot be easily broken. It is easily understood one's feeling of violence towards his elders, teachers and brothers as a momentary excitement but it cannot be given a definite form of violence.

The driving force in a human being is not his body and senses but his soul. Similarly, Arjuna could not attain that self confidence with which he can experience emptiness of his aspirations and desires. The Bhagavad Gita's depiction of how one can control one's impulses emotions, desires and other bodily activities is a pure psychology. Now, we need to focus on the situation how does Arjuna, the great warrior embrace cowardice?

Why and how does he adopt renunciation (tyagavriti) of Brahamana- dharma after deserting kshatriya swabhava? The psychological answer to this question is given in 27th chapter of Udyoga Parva of Mahabharata.

It is a psychological fact the nothing happens without a reason and its background. Sanjay had already prepared the background of Arjuna's cowardice. Before commencement of war, Sanjay, as a messenger of Dhritrashtra requests Yudhishtra not to wage war.

Arjuna who is present there during the conversation attentively listens to him. Sanjay Says:

He says that human life is momentary, full of sorrow and fickleness. Therefore, Yudhishtra should not wage the war; it is not according to his fame. Here, Sanjay tries to dishearten „Dharmprana“ Arjuna making him consider war as sin.

It implies that the desires hindering right conduct (dharmacharna) draw an individual towards themselves. Therefore, an intelligent person first destroys these desires and thereafter attains fame and admiration. Here Sanjay clearly points out that desire for kingdom is an obstacle to right conduct

(dharmacharana). If this desire is deserted, there will be no war. Moreover, Sanjay's next sentence makes Arjuna feel weak and confused.

It means the one who considers right conduct (dharma) as prime ideal among all three ideals- dharma, artha, and kama and leads his life accordingly, he gets fame and shines like sun. But the one who is devoid of dharma and whose intellect is associated with sin, he, despite owning the whole earth, suffers continuously. The next sentence of Sanjay again weakens Arjuna's heart as:

In this way, the war appeared before Arjuna as a form of a sin. His thought like „a desire for kingdom“, „sacrifice for others“ and „Kaurava must kill me“ etc. are symbols of inferiority caused by Sanjay's statements. Generally, attachment is considered as the greatest enemy of human being but the psychological perspective states that the greatest enemy is that power which induces the feeling of inferiority in the human being.

Here we find Sanjay in a role which weakens Pandavas side and strengthens Kaurava side with his politics. If we look at Arjuna's character, he was not a coward, due to his inferiority complex, he started to feel disheartened.

There is a need of a teacher who is superior, restrained and knows yoga to uplift Arjuna and the need was fulfilled by Sri Krishna. He came to know the inferiority of Arjuna after listening to his statements in no time. He tries to convince him as follows:

It is necessary to remind person's bravery, duties etc. in order to erase thoughts of inferiority and steers him to work patiently. He tells Arjuna that his enemies are afraid of him, they tremble with fear, they get disheartened after seeing his bravery, they are almost dead and he is just an instrumental cause. Krishna, also, clarifies the form of soul as eternal entity- to kill or to be killed

The attachment to body is not right because it is not eternal. The eternal soul never dies. Therefore he would not acquire sin of killing Kauravas and their people. But, if he deserts his Swadharma and will not involve in war then he will acquire sin. In chapter second, his preaching about 'Isthitpragyata' prepared the background to stabilize Arjuna's state of mind. At this Arjuna says:

It is very difficult to subdue mind which is restless, turbulent, and obstinate even more difficult than controlling the wind. But at the same time, Sri Krishna elevates Arjuna's spirit after motivating him. He says:

BUDDHIYOGA

Buddhi yoga (purpose of the Gita) is another worthy concept to look into.

Buddhi (intellect) is an ability to learn. A person has three abilities namely adjustment, learning and abstract thinking which are complementary to each other.

In the Gita Sri Krishna identifies himself with his intellect and he has defined an ideal person as 'Isthirbuddhi'. If it is necessary to have trained and enlightened reason for spirituality, the loss of reason and logic causes downfall and the loss of reason lead to destruction of the person. Sri Krishna imparts Buddhiyoga to Arjuna enlightening him with the light of his knowledge.

Arjuna gets illumined and accepts humbly that his illusion has now gone and he has regained memory.

He is now firm and free from doubt and is prepared to act according to His instructions

It means the faculty that is helpful in determination is called intellect. A person first should determine that the supreme soul is the complete entity everywhere. Such an intelligent person treats alike all creatures of world. The same idea is expressed in the following verse It means a truly wise person is one whose intellect treats equally a brahmana, an outcaste, a cow, an elephant, a dog and he considers others as his equal.

The concept of „Isthitpragya’ is reflected upon in a unique manner that is not found in the discussion of „intelligence“ of modern psychologists.

GITA AND HUMAN PSYCHOLOGY

Etymologically, the word ‘psychology’, with its origin attributed to the Greek psyche, means ‘study of the soul’. In the modern parlance, it means the science of mind and behaviour. Now, this inter-related triad of soul, mind and behaviour also constitutes the central concern of the Bhagavad Gita, which ultimately charts the course of harmonising the self (soul) with the absolute (Brahman), involving inter-alia an in-depth analysis of human mind and behavioural types.

The Freudian structural model of the psyche comprises three parts: the id, the ego and the super-ego. The id represents in-born tendencies, the instinctive drives and impulses ‘inherited at birth’ and ‘laid down in the constitution’ of a personality; it acts on the ‘pleasure principle’, seeking satisfaction of instinctual needs.

The ego acts on the ‘reality principle’, seeking to channel and meet the id’s drives of passion in realistic ways, factoring in the influence of the environment through reason and common sense, constantly conflicted by and constantly seeking to mediate among the id, the super-ego and the external world, with a latent predisposition for the id. Originally Freud termed ego to mean a sense of self, but later modified the meaning as a set of psychic functions, such as judgement, tolerance, reality testing, control, planning, defence mechanism, intellectual functioning and memory. Super-ego is the urge to perfection and represents internalised societal and parental standards of right and wrong behaviour – a type of conscience that punishes misbehaviour with sense of guilt. Freud stressed on the dominance of sexual drive in the subconscious id.

This part of his theory was however contested by his one-time colleague, Carl Jung, whose work on himself and on his patients convinced him that life has a spiritual purpose beyond material goals and that spiritual experience is essential to our well being.

According to Jung, man’s principal task is to discover and fulfill his deep innate potential in much the same way the caterpillar fulfills its potential to become a butterfly. Based on his study of Christianity, Hinduism, Buddhism, Taoism and other traditions, Jung suggested that ‘individuation’ – a journey of transformation to meet the self and also to meet the divine – is at the mystical heart of all religions.

includes Jung’s postulation of individuation as an integrated transformational process encompassing the ‘collective unconscious’, representing a deeper collective or social level of psychic functioning underlying the Freudian ‘personal unconscious’; people at an advanced stage of individuation tend to be harmonious, mature, humane and socially responsible, having a good understanding of the human nature and the universe.

In addition to these classical models of Freud and Jung, in contemporary psychology we come across other models, such as the Five Factor Model (FFM), listing the “big five” of openness, conscientiousness, extraversion, agreeableness and neuroticism to describe human personality.

Another notable post-Freudian model is Eric Berne’s Transactional Analysis, also called the Parent-Adult-Child model, integrating the psycho-analytic and cognitive approaches

As expressly stated in all these psychological theories, these are all ‘models’ to understand and characterise human mind and behaviour. Now, as we would try to explore here, Gita is also concerned with classifying personalities based on models: of the good, passionate and dull modes of mind; of the divine and demoniac endowments; of the devotee and nondevotee; of the steady and non-steady.

In science, the underlying hypothesis in modeling is that a super- imposition of plural models may provide a better understanding of the truth of nature. The same applies to understanding the truth of the human nature and spirit and its causal and driving principles.

In science, Niels Bohr propounded the Complementarity principle to get beyond the conundrum of duality: that some characteristics of an electron are explicable by its particle nature (deterministic model) while some others are explained by its wave nature (probabilistic model). Similarly, Gita makes the case that the human mind can be best understood as a super-imposition of the models of impressions (vāsanās), modes (guṇas), endowments (sampadas), and faiths (śraddhās).

The Holy Geeta entered my life in the autumn of 1993. I was sitting in Chennai’s Taj Coromandal one evening not knowing what to do when I happened to see the Holy Geeta by Swami Chinamayanandji. Something attracted me and I got down to reading it. In eight years am on my third read now. It has become my best friend. When I am feeling low, confused or lonely I open the Gita, read a few pages and feel content thereafter. The beauty is that the interpretation of various slokhas is different every time I read it. May be it has to do with the stages and situations in my life. The one by Swamiji is very good for a spiritually evolved person.

What I like in the one by Swami Rama is that it is easy to understand, very good for a person who is reading the Geeta for the first time

A bit about Swami Rama. Swamiji founded the Himalayan International Institute of Yoga Science and Philosophy, the Himalayan Institute Hospital Trust in India and many centers across the world. A student of both Himalayan cave monasteries and European universities, he founded the Himalayan Institute to create a bridge between the ancient teachings of the East and modern scientific approaches of the West.

Some people associate the Holy Geeta with Sanathan Dharam. To my mind it has universal application, shows us how to handle the problems of life, be happy in spite of ups and downs, perform duty without being attached to the fruits of action etc. The Geeta is eternal, as relevant today as it was thousands of years ago.

For your convenience I have reproduced the book verbatim. The format is as follows. It starts with an introduction followed by excerpts from individual chapters. Each chapter consists of slokhas with commentaries. Besides explaining the slokha, the commentary highlights the comparison between eastern and western psychology. It has my comments in brackets to help you distinguish it from the original text.

“The Bhagawad Gita is the fountainhead of eastern psychology and this commentary is designed to

draw out its psychological concepts and make them accessible to all students. These profound insights are intertwined with philosophical concepts, so the task undertaken here is to separate the psychological principles and to explain their practical application.

The word philosophy is a compound of two words, philo and Sophia, which means 'love for knowledge'. There are 18 chapters in the Gita each describing a different aspect of the process of self-transformation. The aim of the Gita is to teach the aspirant how to establish equanimity in his internal life and in his activities in the external world, to help him develop that tranquility within, and to explain the art and science of doing actions skillfully and selflessly.

The book aims at helping you understand your inner potentials, it is not possible to function effectively and harmoniously in the external world, for all the things happen within before they are expressed externally. Sri Krishna modified and simplified the Vedic and Upanishadic knowledge with the Geeta.

Modern psychologists attempt to help the client modify his conscious attitudes and unconscious behaviors, but their analysis lacks the depth and profundity found in the Gita. Most modern therapists do not explore the purpose and meaning of life. They do not go to the root of the problem but analyze it without understanding the fundamental cause.

By contrast Sri Krishna presents a philosophical foundation for understanding the purpose of life and the way to live life harmoniously, and he offers Arjuna practical advice on living and coping with the world".

PSYCHOLOGICAL THOUGHT IN BUDDHISM

Buddhist psychology is primarily about self-knowledge- finding out more about who you are, understanding your decisions, actions, thoughts, feelings, etc. It is an expression of the Delphic dictum *Know Thyself* and the injunction that transformative spiritual paths throughout time and geography have demanded as the central ingredient in authentic happiness.

Buddhist psychology is 'radical,' as it aims to challenge your worldview (as all authentic spirituality and psychology does). It is radical in that it addresses the basis or foundation of our psychological functioning, our sense of who we are, and our relationships with others and with the world. As a result, the fruit of applying the psychological insights of the Buddha requires diligence, perseverance and discernment as they will naturally encounter the resistances and obstacles inherent in our conditioned nature.

It is not a coincidence that Buddhism finds itself so welcome in the western world since the last decades of the preceding century.

While the appeal certainly includes those who have converted to Buddhism as a faith and have adopted the practices, liturgies and meditations of whatever form of Buddhism speaks to them, the more unique and far-reaching impact of Buddhism, as a psychology, has taken place in academia and among clinical researchers, who have observed that the Buddhist understanding of consciousness, mind, behavior, motivation, personality and psychopathology bear a close resemblance to perspectives held in western psychology and psychotherapy.

While the Buddha was not a psychiatrist or psychologist in the formal sense of the word, the vast majority of his recorded teachings, are explicitly concerned with the sources of emotional suffering and their amelioration. No doubt there is much, much more to Buddhism than the psychology he

elucidates.

Yet, an argument will be made that these more 'religious' elements, for the want of a better word, or possibly 'experience-far' aspects, are of appeal to those who seek a religious Buddhism, a Buddhism that provides for a level of faith and understanding that speaks to the needs of their heart, but which can be separated out, and set aside, for those who do not seek such a religious experience (possibly content with their own existing faith, or with none at all) but who rather wish to deepen their self-knowledge and happiness.

It is these experience-near or psychological Buddhism that speaks loudly in the West and which may be anticipated to be the legacy of the Buddhist encounter with the West.

Let's examine some of the confluences of Western and Buddhist psychology. There is certainly a high degree of overlap in goals and content areas of both disciplines that focus directly understanding human behavior, the source or conditions for unhappiness and ways to reduce, attenuate or even eliminate such unhappiness. Indeed the Buddhist corpus has extensive psychological writings - very explicit and detailed - and not found in other religious traditions.

Thus it is not surprising that some aspect of Buddhist psychology has been of interest to those professions in the west dedicated to alleviating human suffering: medicine, psychiatry, psychology, nursing, social work. The professional journals for each of these disciplines have published so much scientific research (especially related to mindfulness practice) that to fully describe the studies would require a book in itself. The Dalai Lama has explicitly encouraged interaction between western disciplines to further establish links with science and clinical practice.

The Mind and Life Institute is an expression of this venture of cooperation. Elements of Buddhist psychology have been integrated into psychotherapeutic practices for a variety of psychopathological conditions, including depression, anxiety, addiction and stress.

Scientific writers from the entire range of clinical psychology and psychiatry, ranging from psychoanalysis to cognitive to behavioral to humanistic theory, have all addressed aspects of Buddhist psychology.

Not surprising, the Buddhist traditions that have been of greatest appeal to western science and psychology have been those that appear to contain a higher proportion of experience-near aspects (Theravadin, Zen) because they carry much less religious baggage and more easily translated into Western concepts. Less impactful has been the teachings of Mahayana and Tibetan or tantric Buddhism which include a strong element of experience-far teachings and thus are more difficult to translate into concepts that are digestible by the western mind. Nevertheless, even these traditions reflect a more esoteric psychology that does find resonance in the West and which full certainly continue to attract significant interest.

GOAL OF BUDDHIST PSYCHOLOGY

Buddhist psychology, simply put, is concerned with the alleviation of human suffering, distress, and dissatisfaction. However, the Buddhist idea of suffering much broader than what is usually the focus of western psychology. The notion of suffering includes the entire range of human dissatisfaction and anguish and not the clinical disorders described by psychiatry.

And it is also important to note that for the most part the Buddha is referring to emotional suffering rather than physical suffering, per se. The emphasis is on the mental aspects of physical pain rather

than the pain itself. The Buddha's practical project of the understanding and relief of human anguish was also a potent counterforce to metaphysical speculation which the Buddha eschewed.

The pursuit of metaphysical, logical or theoretical issues for their own sake was avoided.

Such questions could not be answered and spending time on them simply distracted from the urgency of the message the Buddha wished to share. This could also be understood as the Buddha's advice to leave questions about the nature of the universe, matter, and reality to those disciplines equipped to study and address them (e.g., science). The domain of science was the area of human endeavour which could answer such questions. The Buddha was primarily concerned with the human mind and its activity.

Much of what the Buddha taught could eventually be empirically and personally evaluated by those who were diligent and persistent. This is an important consideration for those who distinguish experience-near (psychological) and experience-far (religious aspects of Buddhism). While the former could be realized and experienced by anyone who put in the requisite effort, that did not mean it would be easy.

Any profound and transformative understanding of mind would require dedication and perseverance and could not be learned from simply hearing about it or reading it. The Buddha's approach was empirical and scientific- it did not draw on dogma, philosophy or received wisdom. Analytic and experiential investigation worked together to provide the transformative knowledge the Buddha wished to teach us.

The Buddha does not ask that his claims be taken on blind faith, although some faith is necessary to even begin self-exploration. Examine his words on the basis of your reason, experience, and intuition. All of us have the seed of Enlightenment, of authentic happiness, bliss waiting to 'blossom' if nourished.

BUDDHIST PSYCHOLOGY AS A SCIENCE OF CONSCIOUSNESS

We pay extreme attention to our physical bodies (vanity, cosmetics, clothes). We can invest incredible amounts of time towards achievements such as careers, sports, art, money and social standing. We pursue social relationships as a key aspect of our happiness. One can make the argument that our sciences and technologies are devoted to increasing comfort, convenience, pleasure, and so on. There is no doubt that we are highly focused on preserving our physical lives, our social status and relationships, and our sensory and lifestyle. Our education system can be said to be geared to achieving all of these aims, all of which are admirable and good. But little attention is paid to mind or consciousness. It is not taught in school, by caregivers, or friends. This may reflect the Western ambivalence towards mind. Many psychologists have either denied the existence of consciousness or have diminished its influence in our lives; modern neuroscience research has reduced consciousness to brain activity that may have not have any causal agency. Yet, consciousness is precisely the focus of Buddhist psychology.

Andrew Olendzki has done an excellent job at describing the key components of Buddhist psychology and it would be valuable to reiterate some of his conclusions here. Buddhist psychology focuses on the direct experience, consciousness, awareness, mind, subjectivity, of the individual. Buddhist psychology can be descriptive phenomenology of mind, a science of experience. Its

contribution is the Buddha's advice to explore the dynamics of subjectivity as it unfolds in the present moment through the practice of mindfulness meditation. Modern scientific views of mind and behavior have tended toward reductionist explanations, explaining mind in terms of physical structures and brain processes. Olendzki has argued that the reductionist approach doesn't explain lived human experience, the qualia of experience. The absence of the brain in the Buddha's account of mind leaves a place for the contribution of western science but also suggests that to understand the mind, in the manner that the Buddha discusses, does not *require* contributions of neuroscience. The Buddha, through his advocacy of a meditative approach to wisdom, points to a process view of experience consisting of several interdependent processes, functions, and events (i.e. dharmas).

FIVE INSIGHTS OF BUDDHIST PSYCHOLOGY:

(I) CENTRALITY OF CONSCIOUSNESS/ SUBJECTIVITY

The radically psychological nature of Buddhist psychology is evidenced by the need to explore the mind through meditation and other forms of contemplation. It is not necessary to explain it, where it comes from, which part of the brain and so on, which is a major focus of many western scientific disciplines. Our subjectivity consists of moments of awareness that appear seamless but with attention placed on it, within the present moment, can reveal how our cognitive processes culminate in the mental phenomena we experience. Investigating this moment, right here, right now, is where wisdom can arise.

(II) HUMAN EXPERIENCE MANIFESTS THROUGH 6 SENSE SYSTEMS

Along with the 5 senses and their corresponding experiences, mind is considered to be a sense organ, and cognitive events are sense objects. The traditional account of consciousness describes its emergence from interaction of sense organ (e.g., eye) and sense object (e.g., visual object) creating sensory experience (e.g., visual consciousness). Everything we know depends on the activity of these 6 senses. While later developments in Buddhist philosophy posit additional senses, the traditional scriptures focus on these six.

(III) ALL EXPERIENCE IS CONSTRUCTED

The radically psychological nature of Buddhist psychology can be observed in the emphasis on what appears. What appears is a transformation or translation of the external environment into an internal language of consciousness (e.g., photons >> sight; chemicals >> taste, smell; vibration >>> hearing; pressure >> touch; brain activity >>> cognition). The transformation of raw sensory activation into sensory experience is so radical that no way to know what pre-constructed reality is. All we can know is our own subjectivity. Any discussion of what 'reality' is will always be limited by what our senses will permit and what our mind can conceive.

The study of reality is the study of the human construction of experience. And whatever such reality may be is irrelevant to the real purpose of the Buddha's message, to transform delusion into wisdom. This project requires us to explore our inner world. Of course, each individual has their unique, subjective, constructed reality

(IV) EXPERIENCE IS CONSTANTLY CHANGING- AN INCESSANT

SUCCESSION OF EVENTS

Each perception, sensation, cognition, image, memory, feeling is a process that can never be experienced identically again. Every moment is unique. Our brains have evolved to reduce our awareness of such flux to increase our ability to survive. For reasons of adaptation sensory reality is filtered thus distorting our experiences. Three major forms of perceptual distortion are described by the Buddha: perceptions of permanence (perceptual-linguistic), satisfaction (cognitive) and self (metacognitive) are examples of this distortion-tendency.

(V) MIND/BODY (THE SELF) REVEALED THROUGH 5 INTER-DEPENDENT PROCESSES

Five processes or 'aggregates' define the self (i.e., mind/body). These five processes consist of physicality, consciousness, perception, affect, and habit. The Buddhist posits a view of self as an interaction among these five processes to produce the coherent sense of identity and 'I'-ness that defines who we are. It is not accurate to claim that there is no self within Buddhist psychology. This would be absurd. What the Buddha clarifies is that the self we experience has no essence or substance but consists of these 5 constantly arising, abiding and subsiding.

BUDDHISM AND WESTERN PSYCHOLOGY

Assessment of Buddhism in terms of modern western psychology started when British Indologist Rhys Davids translated *Abhidhamma Pitaka* from Pali and Sanskrit texts in 1900. She published the book entitled it, "Buddhist Manual of Psychological Ethics".

In 1914, she wrote another book "Buddhist psychology: An inquiry into the analysis and theory of mind" The mid-twentieth century saw the collaborations between many psychoanalysts and Buddhist scholars as a meeting between "two of the most powerful forces" operating in the Western mind. A variety of renowned teachers, clinicians and writers in the west such as Carl Jung, Erich Fromm, Alan Watts, Tara Brach, Jack Kornfield, Joseph Goldstein, and Sharon Salzberg among others have attempted to bridge and integrate psychology and Buddhism, from time to time, in a manner that offers meaning, inspiration and healing to the common man's suffering.

Buddhism and Western Psychology overlap in theory and in practice. Over the last century, experts have written on many commonalities between Buddhism and the various branches of modern western psychology like phenomenological psychology, psychoanalytical psychotherapy, humanistic psychology, cognitive psychology and existential psychology.

BUDDHISM AND PHENOMENOLOGICAL PSYCHOLOGY

Any assessment of Buddhism in terms of psychology is necessarily a modern western invention. Western and Buddhist scholars have found in Buddhist teachings a detailed introspective phenomenological psychology. Rhys Davids in her book "Buddhist Manual of Psychological Ethics" wrote, "Buddhist philosophy is ethical first and last. Buddhism set itself to analyze and classify mental processes with remarkable insight and sagacity".

Buddhism's psychological orientation is a theme Rhys Davids pursued for decades as evidenced by her other writings. *Abhidhamma Pitaka* articulates a philosophy, a psychology, and ethics as well; all integrated into the framework of a program for liberation. The primary concern of the *Abhidhamma* (or Abhidharma in Sanskrit), is to understand the nature of experience, and thus the reality on which it focuses is conscious reality. For this reason, the philosophical enterprise of the *Abhidhamma* shades off into a phenomenological psychology.

Later on long-term efforts to integrate Abhidhammic psychology with Western empirical sciences have been carried out by other leaders such as Chogyam Trungpa Rinpoche and the 14th Dalai Lama.

In introduction to his 1975 book, *Glimpses of the Abhidharma*, Chogyam Trungpa Rinpoche wrote: "Many modern psychologists have found that the discoveries and explanations of the abhidharma coincide with their own recent discoveries and new ideas; as though the abhidharma, which was taught 2,500 years ago, had been redeveloped in the modern idiom".

Every two years, since 1987, the Dalai Lama has convened "Mind and Life" gatherings of Buddhists and scientists.

Reflecting on one Mind and Life session in March 2000, psychologist Daniel Goleman, the author of the best-selling "Emotional Intelligence" and "Destructive Emotions: A Scientific Dialogue with the Dalai Lama" noted; "since the time of Gautama Buddha in the 5th century BC, an analysis of the mind and its workings has been central to the practices of his followers. This analysis was codified during the first millennium, after his death within the system called *Abhidhamma* (or Abhidharma in Sanskrit), which means ultimate doctrine".

BUDDHISM AND PSYCHOANALYTICAL PSYCHOTHERAPY

Psychoanalyst Carl Jung wrote the foreword to Zen's scholar Daisetz Teitaro Suzuki's introduction to Zen Buddhism, first published together in 1948. In his foreword, Jung highlights the enlightenment experience as the unsurpassed transformation to wholeness for Zen practitioners. "The only movement within our culture which partly has, and partly should have, some understanding of these aspirations for such enlightenment is psychotherapy" Psychoanalysts like Karen Horney and Fritz Perls studied Zen- Buddhism. Karen Horney was intensely interested in Zen Buddhism during the last years of her life.

Richard Wilhelm was a translator of Chinese texts into German language of the I Ching, Tao Te Ching and 'the secret of the goldenflower', with a forward written by Carl Jung. R D Laing, another noted psychoanalyst, went to Ceylon, where he spent two months studying meditation in a Buddhist retreat.

Later on, he spent time learning Sanskrit and visiting Govinda Lama, who had been a guru to Timothy Leary and Richard Alpert. Suzuki, Fromm and other psychoanalysts collaborated at a 1957 workshop on "Zen Buddhism and Psychoanalysis" in Cuernavaca, Mexico. In his contribution to this workshop, Fromm declared:

"Psychoanalysis is a characteristic expression of the Western man's spiritual crisis, and an attempt to find a solution. The common suffering is the alienation from oneself, from one's fellow men, and from nature; the awareness that life runs out of one's hand like sand, and that one will die without

having lived; that one lives in the midst of plenty and yet is joyless”.

Fromm continues: “Zen is the art of seeing into the nature of one's being; it is a way from bondage to freedom; it liberates our natural energies; and it impels us to express our faculty for happiness and love.

” “What can be said with more certainty is that the knowledge of Zen, and a concern with it, can have a most fertile and clarifying influence on the theory and technique of psychoanalysis.

Zen, different as it is in its method from psychoanalysis, can sharpen the focus, throw new light on the nature of insight, and heighten the sense of what it is to see, what it is to be creative, it is to overcome the affective contaminations and false intellectualizations which are the necessary results of experience based on the subject-object split”.

Referencing Jung and Suzuki's collaboration as well as the efforts of others, humanistic philosopher and psychoanalyst Erich Fromm noted; “there is an unmistakable and increasing interest in Zen Buddhism among psychoanalysts”. Erich Fromm also wrote the forward to a 1986 anthology of Nyanaponika Thera's essays on Buddhist philosophy.

There have been many other important contributors, to the popularization of the integration of Buddhist meditation with psychology, including Kornfield, Joseph Goldstein, Tara Brach, Epstein and Nhat Hanh.

Psychoanalysis, pioneered and popularized by such philosophers/psychoanalysts rests upon the idea that uncovering and making conscious buried complexes and memories is a therapeutic process. The relocation of a complex or neurosis from the unconscious to the conscious easily equates to the principles inherent in right meditation and right understanding. One might recall that on Jung's deathbed, he was reading a translation of Hsu Yun's dharma discourses and was reputedly very excited by the succinct and direct methods of Chan's practice in working with the unconscious.

BUDDHISM AND EXISTENTIAL PSYCHOLOGY

Buddha said that life is suffering. Existential psychology speaks of *ontological anxiety* (dread, angst). Buddha said that suffering is due to attachment.

Existential psychology also has some similar concepts. We cling to things in the hope that they will provide us with a certain benefit.

Buddha said that suffering can be extinguished. The Buddhist concept of nirvana is quite similar to the existentialists' freedom. Freedom has, in fact, been used in Buddhism in the context of freedom from rebirth or freedom from the effects of karma. For the existentialist, freedom is a fact of our being, one which we often ignore. Finally, Buddha says that there is a way to extinguish suffering. For the existential psychologist, the therapist must take an assertive role in helping the client become aware of the reality of his or her suffering and its roots.

Likewise, the client must take an assertive role in working towards improvement—even though it means facing the fears they've been working so hard to avoid, and especially facing the fear that they will “lose” themselves in the process.

BUDDHISM AND COGNITIVE-BEHAVIOR THERAPY PRINCIPLES

Buddhistic mindfulness practices have been explicitly incorporated into a variety of psychological treatments. More specifically psychotherapies dealing with cognitive restructuring share core principles with ancient Buddhist antidotes to personal suffering.

Fromm distinguishes between two types of meditative techniques that have been used in psychotherapy: (i) auto-suggestion used to induce relaxation; and (ii) meditation “to achieve a higher degree of non-attachment, of non-greed, and of non-illusion; briefly, those that serve to reach a higher level of being”. Fromm attributes techniques associated with the latter to Buddhist mindfulness practices.

Two increasingly popular therapeutic practices using Buddhist mindfulness techniques are Jon Kabat-Zinn's Mindfulness-based Stress Reduction (MBSR), and Marsha M. Linehan's dialectical behavioral therapy (DBT). Other prominent therapies that use mindfulness include mindfulness-based cognitive therapy (MBCT) and Steven C. Hayes' Acceptance and commitment therapy (ACT). Mindfulness-based stress reduction Kabat-Zinn developed the 8-week MBSR program over a 10-year period with over 4,000 patients at the University of Massachusetts Medical Center. Describing the MBSR program, Kabat-Zinn writes: “This ‘work’ involves above all the regular, disciplined practice of moment-to-moment awareness or *mindfulness*, the complete ‘owning’ of each moment of your experience, good, bad, or ugly.

This is the essence of full catastrophic living.” Kabat-Zinn, a one-time Zen practitioner, goes on to write: “Although at this time, mindfulness meditation is most commonly taught and practiced within the context of Buddhism, its essence is universal. Yet it is no accident that mindfulness comes out of Buddhism, which has as its overriding concerns the relief of suffering and the dispelling of illusions”.

Not surprisingly, in terms of clinical diagnoses, MBSR has proven beneficial for people with depression and anxiety disorders; however, the program is meant to serve anyone experiencing significant stress.

DIALECTICAL BEHAVIORAL THERAPY

In writing about DBT, Zen practitioner Linehan states: “As its name suggests, its overriding characteristic is an emphasis on ‘dialectics’ – that is, the reconciliation of opposites in a continual process of synthesis. This emphasis on acceptance as a balance to change flows directly from the integration of a perspective drawn from the practice of Buddhism with Western psychological practice.”

SIMILARLY, LINEHAN WRITES:

“Mindfulness skills are central to DBT. They are the first skills taught and are reviewed every week. The skills are psychological and behavioral versions of meditation practices from Eastern spiritual training. Linehan has drawn heavily from the practice of Zen. Controlled clinical studies have demonstrated DBT's effectiveness for people with borderline personality disorder.

Dr. Albert Ellis, has written that many of the principles incorporated in the theory of rational-emotive psychotherapy are not new; some of them were originally stated several thousands of years ago, by Taoist and Buddhist thinkers. To give one example, Buddhism identifies anger and ill-will as basic

hindrances to spiritual development. A common Buddhist antidote for anger is the use of active contemplation of loving thoughts. This is similar to using a CBT technique known as “emotional training” which Ellis described.

The school of Behaviorism describe (or reduce) human functions to principles of behavior, which can be manipulated to create positive effects in the life of the patient. In the Noble Eightfold Path we see reflections of this approach in the exhortations to Right Action, Right Speech and Right Livelihood. One may consider the story of the Buddha who was approached by a rich but miserly man who wanted to develop his spiritual life but was constrained by his seeming inability to share his wealth with others. The Buddha addressed this problem by telling him to get into the habit of using his right hand to give his left hand items of value and in doing so learn the art of giving!

Cognitive and cognitive-behaviorists focus more on training the mind to review and question assumptions, phobias, fears and beliefs. These therapists are typically associated with such techniques as visualization and positive self-talk designed to teach, or unlearn, principles that are, respectively, helpful or unhelpful.

Again, the noble eightfold path and its focus on right mindfulness and right thinking are the corollary in Buddhist thought.

BUDDHISM AND OTHER PSYCHOTHERAPY PRINCIPLES

Gestalt Therapy is an approach created by Fritz Perls, based heavily on existentialist philosophy and significantly, Zen Buddhism (among other influences). In Gestalt, the premise is we must work with the whole person, the “gestalt” in German, which echoes the wisdom of Right Understanding. Its techniques encourage Right Mindfulness, and the focus on the immediate, phenomenological and experiential reality of the here and now, in the physical, emotional and mental realms.

David Brazier in his book *Zen Therapy* makes a thoughtful comparison of some principal Buddhist concepts and person-centered (Rogerian) Therapy. Developed by Carl Rogers, this therapeutic approach includes virtually all effective therapy, either in principle or technique. In basic terms, its goal is to provide the patient a safe place, an environment where he or she may express their problems. The therapist does not direct the process, but works on the assumption the patient has the resources to deal with their own “cure” and self-growth, provided the environment is supportive of them. Like the Buddha, this non-authoritative approach suggests the patient can be “a light unto themselves”. Although the therapist may do little more than provide active and empathic listening, and reflect and validate the thoughts and emotions of the struggling patient, they nonetheless, provide three crucial components for change to occur; unconditional positive regard, empathy and congruence (or genuineness). These are the elements that are considered essential to create an environment where the individual can grow, learn and evolve.

This is of particular interest to the Buddhist student who is taught that all suffering stems from the three “bitter roots” or “poisons” of greed, hatred and delusion. Brazier demonstrates how, from a therapeutic perspective, Person-Centered Therapy counters each of these “poisons”; empathy is the “antidote” to hate, unconditional positive regard provides a model of acceptance of self and other which counters the grasping, needy nature of greed, and congruence (genuineness) is the opposite of delusion. Delusion itself, as Brazier suggests, could just as well be translated as “incongruence”, the separation of self and mind from what is real and what is present.

CONCLUSIO

Buddha was commonly referred to as “the great physician” and like any therapist, made it his aim to identify, explain and end human suffering. All therapists do have similar aims. Four Noble Truths are the method to adopt a diagnostic format to explain suffering and its cure; the 1st Noble Truth identifies the disease, the 2nd provides etiology, the 3rd gives a prognosis, and the 4th suggests a remedy.

Philosopher and Orientalist Alan Watts once wrote: If we look deeply into such ways of life as Buddhism, we do not find either philosophy or religion as these are understood in the West. We find something more nearly resembling psychotherapy. The main resemblance between these Eastern ways of life and Western psychotherapy is in the concern of both with bringing about changes of consciousness, changes in our ways of feeling our own existence and our relation to human society and the natural world.

What Buddhism is really all about is returning to this life, your very own little life, with a “new attitude.” By being more calm, more aware, a nicer person morally, someone who has given up envy and greed and hatred and such, who understands that nothing is forever, that grief is the price we willingly pay for love... this life becomes at very least bearable. We stop torturing ourselves and allow ourselves to enjoy what there is to enjoy.

Buddha was a unique psychotherapist. His therapeutic methods helped millions of people throughout the centuries. Today the Western world has realized the psychological essence of Buddhism. Many Psychotherapeutic systems in the West are derived from Buddha's teaching. Buddha showed empathy and non-judgmental acceptance to everyone who came to him. He helped people to gain insight and helped in growth promotion while eliminating troubling and painful emotions. His therapeutic methods are exceptional and can be applied for all times. Prince Gautama gave his entire life in understanding and then propagating his philosophy. People have devoted their entire lives to studying and understanding his philosophy. Being a student of modern psychiatry, I do not claim to be an expert in Buddhist philosophy and/or religion. This essay is just an expression of what little I have understood on His philosophy and an opportunity to offer my deep tribute to one of the greatest psychotherapists the world has ever produced!

PSYCHOLOGICAL THOUGHT IN SUFISM

From the 9th century onwards, Sufism has encapsulated Islamic spirituality. This is the loving heart of Islam, still alive, thriving and widely influential today. It is not the Islam of fundamentalists: quite the reverse.

From the earliest days, ascetic Muslim contemplatives practised fasting, praying and meditation in seclusion, just like the desert mothers and fathers of the Christian tradition, the earliest monks and nuns. Perhaps because they wore rough garments made of wool (*suf* in Arabic), these people came to be known as ‘Sufis.’ Sufism soon became the name of a mystical path by which people seek the truth of divine love and knowledge through direct personal experience of God. Sufis are said to take precious care of the ‘spiritual heart’ through ‘muraqaba,’ a practice akin to meditation.

Their aim and ambition is to grow increasingly attuned to the ever vigilant Divine Presence within. Dedicated Sufis are constantly meditating on the words of the Islamic holy book, the *Qur’an* (Koran).

Sufism is often considered external to the mainstream doctrine of Islam, and has at times encountered opposition and hostility. Many of the great Muslim thinkers were Sufis, however, as were the most successful missionaries. In addition, these humble living examples of wisdom, compassion and love were held in great esteem and affection by ordinary people, those less capable of disentangling the legal and theological intricacies of more formal religion. Two aspects of Sufism well known in western culture are, of course, Rumi and the 'whirling dervishes'.

Jalaladdin Rumi (1207–1273) went through a most powerful spiritual awakening as a young man. Influenced by his beloved teacher, Shams of Tabriz, his heart full of divine light, he became a supreme poet and faithful interpreter of the truths to be found in the *Qur'an*.

By means of sometimes mysterious language, he was able to guide others to a love of God. The *Qur'an* statement, that 'Allah loves them and they love him' quickly became the basis for love-mysticism championed by Rumi, as in the following quatrain:

'Love is here like the blood in my veins and skin, It has emptied me of myself and filled me with the Beloved, His fire has penetrated all the atoms of my body. Of "me" only my name remains; the rest is Him.' Rumi, known too by the honorary title 'Mawlana', also favoured and promoted 'whirling'. This is a form of extended rotatory dancing to sacred music in formal groups while repeating inwardly the name of 'Allah'. It induces a trance-like state of consciousness, and is a central aspect of Sufi worship performed by the renowned Dervishes, some of whom are still practising their traditional 'Sema' (whirling) ceremonies today. Whirling, meditation, prayer, 'dhikr' (regular study and remembrance of the *Qur'an*) and reciting poetry, especially love poetry, are all integral to devotional Sufi spiritual practice.

It is not true that Sufism is a men-only tradition. A woman called Rabi'a (d. 801) who lived in Iraq was, for example, one of the best loved of all the early Sufis. Revered Sufi teacher, Ibn al-Arabi (d. 1240), was first taught the spiritual path in his native Spain by two female Sufis. Later there were Sisterhoods among the different orders of Sufism, as well as Brotherhoods. And women attend Bektashiyya ceremonies, without even wearing veils. Many women follow the Sufi tradition today.

At the heart of Sufism is the idea that humankind, the most honourable of creatures, is bound by covenant to carry the Divine Trust. It follows that if the ego forgets the Divine purpose of creation, viewing itself as existing independent of its Creator, it is betraying that sacred Trust. Now, the modern ego continually quests for self-satisfaction and self-adoration. Sufi practices, like those of many other world religions, enable people to combat this tendency, seeking to discover and bring forth the higher or 'true' self, that spark within each person, constantly attuned to the spiritual dimension.

The Sufi seeks to live according to eternal, selfless spiritual values, rather than transient, mercenary worldly ones. Neuro-scientific studies reveal that practices like meditation, chanting and whirling all improve harmony between the dualist, verbal, intellect of the brain's left hemisphere and the holistic, silent, poetic intuition of the right. That Christianity, Judaism, Buddhism, Zen, Taoism, and Hinduism's Vedanta all promote similar practices, aimed equally at conquering the tyranny of the ego, indicates a comforting degree of uniformity among travellers along the pathway to spiritual maturity, whatever their religious origin.

The term "Sufi psychology" is probably a deceptive one, because it implies that there is a relatively homogenous doctrine of the psyche that the majority of the Sufis would subscribe to. It is not the case. However, one can point out the terms most frequently used and expound on the meanings of these notions.

Drawing from Qur'anic verses, virtually all Sufis distinguish between Nafs, Qalb, Sirr and Ruh. These concepts designate various psychospiritual "organs" or, sometimes, faculties of sensory and supra-sensory perception.

NAFS

Nafs is usually translated as soul or psyche. Its etymology is rooted in "breath" (similar to Biblical or Kabbalistic nefesh and is common to virtually all archaic psychologies where the act of breathing was connected with life, animating otherwise lifeless object. In this respect, ancient notions of "Atman" in Hinduism (cf. German noun "Atem", breath, respiration) or Greek "pneuma" (as well as Latin "spiritus")-all equate the basic visible process of breathing with energizing principle that confers existence to an individual human being.

Some Sufis consider under the term "Nafs" the entirety of psychological processes, encompassing whole mental, emotional and volitional life; however, the majority of Quranic-based Sufis are of the opinion that Nafs is a "lower", egotistical and passionate human nature which, along with Tab (literally, physical nature), comprises vegetative and animal aspects of human life.

Synonyms for Nafs are devil, passion, greed, avarice, ego-centredness etc. The central aim of the Sufi path is transformation of Nafs (technical term is "Tazkiya-I-Nafs" or "purgation of the soul") from its deplorable state of ego-centredness through various psychospiritual stages to the purity and submission to the will of God. Although the majority of the Sufi orders have adopted convenient 7 maqams (maqams are permanent stages on the voyage towards spiritual transformation), and some still operate with 3 stages, the picture is clear: the Sufi's journey begins with Nafs-I-Ammare (self-accusing soul) and ends in Nafs-I-Mutma'inna (satisfied soul)- although some Sufis's final stage is, in their technical vocabulary, Nafs-I-Safiya wa Kamila (soul restful and perfected in God's presence). In essence, this is almost identical to Christian paradigm of "vita purgativa" and various stages the spiritual aspirant traverses in the journey towards God.

QALB

The next term, Qalb, stands for heart. In Sufi terminology, this spiritual heart (not to be confused with the pump in the breast) is again variously described. For some, it is the seat of beatific vision. Others consider it the gate of Ishq or Divine love. Yet, for the majority, it is the battleground of two warring armies: those of Nafs and Ruh or spirit. Here, one again encounters terminological confusion: for the Sufis influenced by Neoplatonism, a "higher" part of Nafs is equated to the Aql or intellect (called Nafs-I-Natiqa) or "rational soul" and is the central active agent in spiritual battle: Ruh or spirit, notwithstanding its name, is rather passive in this stage. In short, cleansing of the Qalb or heart is a necessary spiritual discipline for travellers on the Sufi path. The term for this process is Tazkiah-I-Qalb and the aim is the erasure of everything that stands in the way of purifying God's love or Ishq.

SIRR

The third faculty is Sirr, or "the secret", located for the majority in the middle of the chest. Emptying of the Sirr (Taqliyya-I-Sirr) is basically focusing on God's names and attributes in perpetual remembrance or Dhikr, hence diverting one's attention from the mundane aspects of human life and fixing it on the spiritual realm. The "emptying" signifies negation and obliteration of ego-centred human propensities.

RUH

Ruh or spirit is the fourth "entity" and the second contender in the battle for human life. Again, opinions on Ruh differ among Sufis. Some deem it coeternal with God; others consider it a created entity. Be as it may, Ruh is the plateau of consensus for the majority of Sufis, especially the early ones (before 11th/12th century C.E.). For those Sufis with Gnostic leanings (which can be found in Bektashi or Mevlevi orders), Ruh is a soul-spark, immortal entity and transegoic "true self", similar to the Christian concepts of "synteresis" or "Imago Dei", or Vedantist notion of "jiva", as well as a Tibetan Buddhist "shes-pa", principle of consciousness and Taoist "shen" or spirit.

But, the majority of the Sufis would consider this an unnecessarily extravagant speculation and would stick to the more orthodox notion of dormant spiritual faculty that needs to be worked upon by constant vigil and prayer in order to achieve the Tajliyya-l-Ruh, or Illumination of the spirit. Ironically, this spiritual faculty is frequently referred to in terms one encounters in connection with Nafs- "blind" life force or life current that needs to be purified by strict religious observances in order to achieve illumination.

So, in these four "organs" or faculties: Nafs, Qalb, Sirr and Ruh, and the purificative activities applied to them, the basic orthodox Sufi psychology is contained. The purification of elementary passionate nature (Tazkiya-l-Nafs), followed by cleansing of the spiritual heart so that it may acquire a mirror-like purity of reflection (Tazkiya-l-Qalb) and become the receptacle of God's love (Ishq), fortified by emptying of egoic drives (Taqliyya-l-Sirr) and remembrance of God's attributes (Dhikr), gloriously ending in illumination of the spirit (Tajjali-l-Ruh)- this is the essential Sufi spiritual journey. Other spiritual faculties, like Khafi (the arcane) and Akhfa (the most arcane) are employed in other Sufi orders like Naqshbandi, but this is beyond general basic consensus.

THE NEED TO KNOW SUFISM

Human cognitions and behaviors are determined largely by a set of facts and values. The facts are mostly derived from the science and the values have their origin in religious or non-religious philosophies such as humanism and existentialism. Spirituality being an integral part of most of the religious philosophies provides the value system for the majority of people and thereby influences their well-being. Recognizing this, the spiritual well-being, in accordance with the social and cultural patterns, was accepted as one of the important determinants of health by the World Health Organization during the 37th World Health Assembly in 1984.

Spiritual teaching has already found its place in the curriculum of many medical schools in the Western world. From a mental health perspective, spirituality seems to have a far greater role as these operate on the same ground – the brain or as some would like it call it the mind or the soul. In fact, there are studies that show positive as well as the negative impact of the spiritual and religious beliefs and practices on the physical and mental well-being of people who subscribe to spiritual or religious practices.

Sufism, having a large following both in the Muslim world and outside coupled with migration of large numbers of people from eastern Sufi oriented lands to the west, is a rapidly growing form of spirituality that needs to be understood in terms of its impact on the mental well-being of its followers and the potential interactions in the mental health care clinical settings.

From a more philosophical point of view, Sufism provides an opportunity to understand the source of religious knowledge in general and Islamic knowledge (revelation) in particular. In Sufi traditions,

it is believed that Sufis can have similar knowledge revealing experiences as are the source of religious knowledge in the form of revelation of the Quran (the scripture of Islam) to Muhammad (the Prophet of Islam).

The study of these Sufi experiences which share phenomenological ground with the prophetic experiences of revelation provides a possibility for the scientific study of the sources of religious knowledge. From day-to-day clinical practice to research, the study of the normal and abnormal perceptual/experiential phenomena and its implications form an integral part of the mental-health related sciences and puts the students of mental-health sciences in a coveted position to study the Sufi experiences.

HISTORICAL BACKGROUND OF SUFISM

The term Mysticism had its beginning in the mystery cults of the Greeks, which involved a close circle of devotees who because of their innate capacity were believed to have the knowledge of the divine revealed to them.

Etymology aside, mysticism has been practiced since ages across all the cultures and has been a vital part of the major religions of the world. Perhaps it represents an innate desire of the man to understand himself and the world around. All forms of mysticism aspire for a union with the divine and believe that it is only possible through the purification of soul to receive direct knowledge and revelation from the divine.

Islam began in 610 AD and established itself through the teachings of Muhammad believed to be revealed to him by God through the archangel Gabriel primarily among the Arab pagan and Christian communities. The close contact between the Muslim and the Christian communities during the formative years of Islam had its influence on the development of the Sufism – the mystic traditions of Islam.

Sufism established itself within the traditions of the Islam as laid down in the Quran believed to be revealed to Muhammad by God. The Sufis believe that communion with God is possible through Muhammad, who was the recipient of the knowledge of the heart (*Ilm-e-Sina*) besides the outer knowledge (*Ilm-e-safina*).

Ali, one of the Muhammad's companions and son-in-law, is considered to be the first Sufi to whom the *Ilm-e-Sina* was revealed by Muhammad to be taught to those capable of understanding it. Contrary to the mainstream, some schools of thought in Islam denounce Sufism as heretical and consider it an innovation in Islam. However, the concept of God, the possibility of esoteric knowledge and the ways to access God through purification of self by means of prayer, fasting and repentance that form the foundations of Sufism find their source in the Quran and the teachings of the prophet known as *Hadith*.

Sufism in the beginning was primarily an individual endeavor. The Sufis would usually live in isolation practicing self-mortification and were distinguished by a cloak of wool (*Suf*), a tradition of Muhammad, which is believed to be the origin of the word Sufi.

A group of such devout lived a life of poverty and incessant prayer and fasting on a stone bench in front of Muhammad's mosque.

These people of the bench (*Ashab-e-suffa*), 45 to over 300 in number, were given to much weeping

and repentance and are believed to be the origin of the Sufism.

However, the name Sufi was given to such ascetics only around the second century of death of Muhammad. The Sufis in the early period were primarily ascetics and Sufism had not yet evolved into a fully developed system of theosophical doctrines, which became the core feature of the later Sufism.

The companions of Muhammad like Bilal, Salman Farsi, Ammar bin Yasir were the early mystics. Later with the spread of Islam Sufism flourished in Iraq, Syria, Egypt, Persia and Central Asia and gave birth to the renowned Sufis like Rabia Basri, Hasan Basri, Junayd Baghdadi, Dhun Nun Misri, etc., around the 9th and 10th century.

As the early Sufi masters started teaching those in search of divine, a distinct tradition in the form of closely-knit communities centered around these masters flourished. The transformation of such communities into those, which shared a spiritual lineage, took place around the 11th century and led to the formation of Sufi orders (*silsilas*), chains through which they would eventually link their disciples to Muhammad

The early Sufi orders like Muhasibis, Qassaris, Junaydis, Nuris, Sahlis, Hakimis, Kharrazis, Sayyaris, and Tayfuris though limited to particular geographic locales were influential in the development of Sufi thought.

Later major Sufi orders with a wider appeal were established around Sufi masters like Qadri by Abdul Qadir Jilani (Baghdad), Chishti by Abu Ishaq Shami (Syria), Suharwardi by Abu Najib Suharwardi, Yasavi by Ahmed Yasavi (Kazakhstan), Kubrawiya by Najmuddin Kubra (Central Asia), Rifai by Ahmed Rifai (Iraq), Shadhili by Abul Hasan Shadhili (Morocco), Mevlavi by Jalal ud Din Rumi (Konya), Naqshbandi by Bahauddin Naqshband (Bukhara), Nimatullahi by Nuruddin Muhammad Nimatullah (Syria) and Tijani by Abbas Ahmad ibn al Tijani (Algeria). The Sufi orders practiced presently run in hundreds but most of these represent the offshoots of the earlier ones.

The 13th century considered the golden age of Sufism was marked by the development of comprehensive mystical and theosophical doctrines of Sufism by the Sufi scholars like Ibn ul Arabi of Spain, Ibn ul Farid of Egypt and the popular Persian Sufi poet Jalal ud Din Rumi. After the golden era the Arab-Muslim world produced only a few notable Sufi scholars though the influence of Sufi orders continued to grow.

The rise of Wahabism in the late 18th and 19th century that condemned Sufism as a heresy and the social and political reforms in the Muslim world during the 20th century that considered Sufism as an impediment to development restricted the growth of Sufi philosophy and confined it to closely-knit circles of spiritual education.

Apart from the Christian asceticism, Hinduism had a significant influence on Sufism both in terms of the philosophical basis and the meditation practices, which started much before Sufism reached the Indian subcontinent

The concept of existential unity of being (*wahdat-ul-wujood*) propounded by Ibn ul Arabi in the 13th century bears striking similarity to the Advaita philosophy (unified Brahma-Jnana) of the Puranas (ancient Hindu religious texts).

The concept of *wahdat-ul-wujood* has been a dominant philosophy in the later day Sufis which brought them closer to the Hindu mystics like Ramanand, Chaitanya, Ramanuja, Namdev, Mira Bai, Tukaram, and Ramdas, resulting in social movements like the Bhakti movement.

The Sufis also incorporated some of the meditation techniques from the Hindu mystics like the breathing techniques to facilitate their Sufi practices. In the 11th century, Saifuddin Kaziruni from Iran was the first Sufi to settle in the Indian subcontinent.

Later the subcontinent became home to some of the great Sufi saints and scholars such as Moinuddin Chishti, Nizamuddin Awliya, Fariduddin Ganj-i-Shakar, and Qutbuddin Bakhtiar Kaki, whose teachings were influential in much of the growth and acceptance of Islam.

SUFISM: THE ESSENCE

The ultimate aim of the Sufi is communion with God through spiritual realization, which is achieved through the knowledge revealed by Quran (*ilm*) and the practice of Islam (*amal*).

Since its inception the Sufi philosophy has revolved around the concept of God and the ways and nature of communion with him. The early Sufis adhered strictly to the Quran in their interpretation of the concept of the God as infinite, eternal, unchangeable, creator, all-powerful, merciful and the cause of all existence. With the growth of Sufi philosophy, the concept of God changed from the one as the cause of all existence to the idea of God as the only real existence. This philosophy reached its ultimate in the concept of the *wahdat-ul-wujoo* Sufis regards the soul as the agency for communication with God. It is the higher soul, as Sufis believe, created before any human being came into existence, consisting of heart (*qalb*), spirit (*ruh*), and conscience (*sirr*) that has the ability to know God. The *sirr* is regarded by many Sufis to represent the "secret shrine of God himself, wherein he knows man and man can know him."

The heart (*qalb*) has an important place in Sufism and is considered to contain the divine spark that leads to spiritual realization. Sufis cherish the revelation by God that "I, who cannot fit into all the heavens and earths, fit in the heart of the sincere believer." For the heart (*qalb*) to reflect the truth as it is, it has to be cleansed of the rust of worldly influences.

The concept of the covenant (*misaq*) described in Quran "And (remember) when thy Lord brought forth from the children of Adam, from their reins, their seed, and made them testify of themselves (saying): Am I not your Lord? They said: Yea, verily. We testify. (That was) lest ye should say at the Day of Resurrection: Lo! Of this we were unaware" forms the basis of the Sufi philosophy of communion with God.

There is another soul (*nafs*) that Sufis regard as the seat of passions that creates hurdles in the communion of the higher soul with God. The *nafs* has to be transformed from *nafs-e ammara* (lustful soul; cf. Id) to *nafs-e lawwama* (self-blaming soul; cf. ego) and ultimately into *nafs-e mutmaenna* (peaceful soul; cf. super-ego) to return to truth.

Muhammad, has a special place in Sufism. The spiritual enlightenment or the ascendance of the higher soul for communion with God is believed to go through a chain of transmissions to Muhammad as through him only can the communion be achieved. Sufis refer to the saying of Muhammad "the first thing that Allah created was my light, which originated from his light and derived from the majesty of his greatness" as a basis for this belief.

Sufis believe that the ascendance is possible only through the process of purification of the soul – the way (*tareeqa*).

PSYCHIC EXPERIENCES IN SUFISM DIFFERENT PERSPECTIVES

Spiritual or psychic experiences are a quite common occurrence across cultures and religions. Though there are no specific studies related to Sufism, surveys reveal the percentage of people having had psychic experiences to range from 20% to 45%; the frequency varying with the time, gender, religion, etc.

Surprisingly the experiences share many features notwithstanding the differences in practices, beliefs, and cultures within which they occur. The psychic experiences occur in the domains of thought, perception and feeling (a complex perceptual experience) and share certain features regardless of the domain. The psychic experiences, partly based on individual accounts of Sufis, are immediate, usually transient, ineffable, unanalyzable, involving intimate association with a unique other self, transcending time, space and person, and felt as a deep sense of bliss.

Historically, psychic experiences have been attributed to divine experiences, possession by demons, regarded as heresy and even insanity. The interpretations have varied with the political and religious environs of the times and have been influenced by the societal class of the claimant, the content of the experiences vis-à-vis the existing political and religious norms, gender, etc. The experiences have been interpreted to promote or discredit a particular political thought and even used as a plea for insanity. The case of two famous Sufis who claimed extreme forms of mystical experiences, Mansur al Hallaj and Bayazid Bastami needs a mention here. Both were and are considered as great Sufis on one hand and as heretics on the other and were even sentenced to death during their times for heresy.

Psychic experiences involve some experiences beyond the normal and Sufis claim these to be the source of ultimate knowledge (*marifa* or gnosis). The possibility of such knowledge yielding experiences has been questioned from philosophical and scientific perspectives. Kant rejected the possibility of the knowledge of ultimate as falling outside the sphere of human experience and hence its irrational nature. Sufi philosophers have argued for the possibility of such experiences as being only an extension of normal human experiences. The Sufi philosopher Fakhruddin Iraqi considered the possibility of these experiences as located in different orders of time and space (divine time and space) consequent to changes in the level of human consciousness.

The greatest impediment in the study of psychic experiences has been the subjective nature of these experiences, which contrasts with the classical objective nature of science.

SUFISM AND PSYCHOTHERAPY

Spiritual and religious beliefs form an important means of coping with stress for a large number of people but unfortunately this has received little attention by the mental health professionals. Recently, however, religion and spirituality have been incorporated into the therapeutic process and have shown promising results.

The assimilation of spirituality into the psychotherapeutic process has been either in the form of an augmentation of an already existing therapeutic technique – spiritually augmented cognitive

behavior therapy or the development of new techniques where spirituality itself forms the core – transpersonal psychotherapy.

Though Sufi beliefs and practices have been incorporated into the transpersonal psychotherapy but there exists no literature about the incorporation of these into the cognitive behavior therapy models.

Spiritually augmented cognitive behavior therap.

Spiritually augmented cognitive behavior therapy is primarily a cognitive behavior therapy which incorporates the individual's belief system, specifically the spiritual, to focus on the existential issues. The therapist works with the individual's spiritual beliefs and practices like meditation, prayer, etc. but at no point attempts to instill his own beliefs or beliefs never held by the patient into the therapeutic process.

The therapy spans over 10-16 sessions, each session lasting 45-70min conducted once a week. The therapy has demonstrated efficacy in controlled trials with reduction of relapse and re-hospitalization in the treatment group.

The Sufi themes of patience (*sabr*), trust in God (*tawwakul*), contentment (*rida*), and God as the ever-forgiver may have a significant impact in changing the negative cognitive schemas and coupled with the Sufi practices of remembrance of god (*zikr*) and thankfulness (*shukr*) may provide an appropriate framework for spiritually augmented cognitive behavior therapy for the Sufi believers.

TRANSPERSONAL PSYCHOTHERAPY

Transpersonal psychotherapy is based on the premise that human beings are essentially spiritual beings and hence the core qualities associated with spirituality form the goals of transpersonal psychotherapy.

The role of the therapist in transpersonal psychotherapy has been seen variously as ranging from a spiritual guide to a “fellow spiritual sojourner.” The therapist does not promote any specific spiritual philosophy and it is the client who leads and determines the spiritual content of the therapy.

Different spiritual practices, including Sufism, yoga, *qigong*, *aikodo* have been incorporated into the transpersonal psychotherapy. Transpersonal psychotherapy has been used for the

treatment of abnormal grief, spiritual crises, psychotic disorders and substance use disorders. Transpersonal psychotherapy can provide the basis for engagement of traditional faith healers with the mental health care services and given the magnitude of people who seek traditional faith healers this can have significant public health impact.

SUFISM AND MENTAL HEALTH CARE SERVICES

A vast number of the mentally ill people in the community go untreated or seek the help of spiritual healers in most of the developing countries. The reasons lie in the belief systems of the people which foster a spiritually oriented explanation of the mental illnesses and the practically non-existent mental health care services in most of the rural settings. The large number of mentally ill people thronging the shrines (*dargah*) of Sufi saints to seek cure is a testimony to this. The Erwadi (India) fire at the shrine of the Sufi saint Shaheed Valiyullah leading to the death of 28 mentally ill people should be a grim reminder of the cost of neglecting the incorporation of people's spiritual beliefs into the mental health care services. The incorporation of spiritual/Sufi elements into the mental

health care services needs to be a two-fold process:

1. Incorporation of the spiritual/Sufi healers into the mental healthcare delivery system which may include basic training in identification of mental illnesses and appropriate referrals when needed.
2. Incorporation of the spiritual/Sufi beliefs and practices into the therapeutic process which may increase the utilization of mental health services by a largely spiritually oriented population. The integration of spiritual beliefs and practices into the mental health care delivery system needs efforts both at the organizational and individual level. Sensitization of the trainees in the mental health profession to spiritual issues needs to be given an impetus

The focus of the training should be on understanding of spirituality as an important part of the individual seeking help and a thorough understanding of the belief systems of the people in the practice area.

CONCLUSION

Sufi beliefs and practices form an integral part of the belief system of not only the majority of the Muslim world but also the western world where it is gaining popularity. Sufism provides a vital link to the understanding of revelation – the source of religious knowledge in Islam as well as other Semitic religions, and influences the mental health of its believers and practitioners in a significant way.

Unfortunately, there is little in terms of research based evidence to draw any conclusions in both these directions. There is a need for research to evolve scientifically sound means of incorporation of Sufi beliefs and practices into the mental health care system before any dogmas strike their roots. At the same time, mental health professionals should not slide into the role of preachers and start promoting the Sufi beliefs and practices; the role should rather be restricted to utilizing these beliefs and practices where it forms a part of the belief system.

PSYCHOLOGICAL THOUGHT IN INTEGRAL YOGA

Psychology: The Perpetual Discovery While physical and life- sciences have made rapid advances and known Nature to some extent, psychology the science of human thought - has not made similar progress. It has yet to know the many hidden possibilities of our mind. Modern Western psychology basically suffers from the materialistic error of making the study of the mind dependent upon our knowledge of the body. It suffers, too, from "a sceptical error which prevents any bold and clear eyed investigation of the hidden profundities of our subjective existence; the error of conservative distrust and recoil which regards any subjective state or experience that departs from the ordinary operations of our mental and psychical nature as a morbidity or a hallucination, - just as the Middle Ages regarded all new science as magic and a diabolical departure from the sane and right limits of human capacity; finally, the error of objectivity which leads the psychologist to study others from outside instead of seeing his true field of knowledge and laboratory of experiment in himself. "!

It must study all the facts of consciousness or, rather, all the planes of consciousness as well as the processes of the Inconscient, the subconscious and the superconscious self. To discover, possess and utilise them all should be the aim of psychology. Our deeper and greater self which is the source of all the facts of our consciousness is not inconscient in its nature, it is essentially superconscious and concealed from our waking self. It is this supreme discovery that opens before the individual the possibility of endless evolution.

Modern psychology proceeds on two divergent lines of investigation. On the one hand it accepts

the Inconscient as the basis of all existence, and like all other physical sciences studies the Inconscient forces working in Matter; it then works 'as a continuation of physiology', and regards Mind as a phenomenal result of the working of these forces. The ' Inconscient is thus raised to the level of a godhead. For modern psychology, "The Inconscient is greater than the conscient; it is the god, the magician, the creator whose action is far more unerring than the ambitious but blundering action of the conscious mentality."? For it, the plant kingdom is more perfectly guided in its growth process precisely because it is part of an unintelligent action whereas the conscious mentality of man is prone to error, open to ignorance and falsehood. The Inconscient, by the law of heredity and intuitive adaptation ensures the perpetuation of healthy and good types of species. Whereas man promotes degeneracy by misusing heredity in the false environment of his social life. A constructive science of eugenics, properly developed by man, could usefully accelerate usefully the selective process of Nature to the advantage of the human race.

There is the other line of psychological enquiry which leads us into the domain of occultism and the psychics. This investigation may not be as positive and tangible in its conclusions as the former, but it is wider and broader based, and capable of a much deeper and surer action. It embraces and explains our surface awareness; it indicates clearly the presence of a hidden Consciousness, subliminal to our waking state, perfect in power and action. The surface mind is only an appearance, a limited action of this subliminal Consciousness. The Upanishadic seers, too, arrive at the realisation of Brahman as the supreme Bliss of Existence after a series of graded experiences. Brahman is progressively realised by them as Matter, Life, Mind and infinite Knowledge, and finally as Bliss, - the highest mode of experience that an individual can reach. Unlike the premise of modern psychology, for which the Inconscient is the basis, the supremely Conscient is the truth of all existence for the Ancients. Ancient Indian psychology speaks of three states of awareness - the waking; the dream and that of deep sleep, jagrat, swapna, susupti. There is the strata of the inmost self that transcends them all - turiya. The Superconscient is unknown and unknowable to the human mind; it is self-collected and concentrated, all-embracing and all-possessing. It is the consciousness of manifold oneness and all delight, it is the omniscient and all-blissful womb of everything. It is unknown to the waking mind.

YOGA: THE PSYCHOLOGY OF SELF-PERFECTION

Yoga is one of the means of knowing man and the workings of cosmic forces through Nature and life. It is the study of the human mind, and of the greater mind expressing itself in all beings and things. It leads to the perception of the divine Intelligence and Will working through individual and cosmic evolution. Yoga is a powerful and perfected method of union with this divine Intelligence and Will. It provides a path of quick and conscious seeking and union with the Divine on one or more planes of our being. While the physical and vital mind looks upon outer things, Yoga penetrates the surface appearances and reaches the reality within them. It is a conscious method of turning within by the practice of three movements, - purification, concentration and identification. The mind as it is constituted deforms Reality and reflects only the physical reality; it reflects even the physical universe not very perfectly and accurately because of its inherent limitation and incapability. The object of purification is to enable the mind to receive the light from above and reflect the Truth fully and perfectly.

The method of Yoga apart from being ethical is essentially psychological. It implies or, rather, necessitates "the consummate practice of a perfect psychological knowledge." It is this practice that transforms philosophical abstraction into spiritual concreteness and the Yogin becomes 'a channel

of God-consciousness and Godaction'. This perfect self-perfection which ensures a fundamental oneness with the Divine both in his being and nature is termed as *siidrsya-mukti*. This identity of the law of one's being with the in-dwelling Divine is what the Gita calls *siidharmya-gati*, and is attained only by an effective and total conversion of the limited and imperfect mental-vital nature of the seeker. The 'thinking mortal matter' of man conceals the Immortal, and Yoga is the most effective means of helping man to extricate himself from the stranglehold of surface life and surface-values and realise the Immortal. Yoga is the unveiling of the Godhead within; it is the best guide to self-exploration and self-conversion. While modern psychology with its scientific and materialistic basis deals with surface mind and surface values, Integral Yoga Psychology with its spiritual and supramental basis takes into consideration the whole nature of the real man. Man is essentially God in a closed chrysalis of animal-physical life. Yoga helps him to discover his real self, his infinite spiritual foundation. His mind-life-body complex is used by the spirit within him as a means for a unique individual and communal experience. It is for the purpose of its self-manifestation in the universe. "The spirit is an infinite existence limiting itself in apparent being for individual experience. It is an infinite consciousness which defines itself in finite forms of consciousness for joy of various knowledge and various power of being. It is an infinite delight of being expanding and contracting itself and its powers, concealing and discovering, formulating many terms of its joy of existence, even to an apparent obscuration and denial of its own nature. In itself it is eternal *Sachchidananda*, but this complexity, this knotting up and unravelling of the infinite in the finite is the aspect we see it assume in universal and in individual nature. To discover the eternal *Sachchidananda*, this essential self of our being within us, and live in it is the stable basis, to make its true nature evident and creative of a divine way of living in our instruments, supermind, mind, life and body, the active principle of a spiritual perfection.:" For the effectuation of its secret purpose in Nature the supreme Spirit uses Supermind, mind, life and body as its four effective instruments. Whereas the Supermind is a self-luminous infinite knowledge and a self-creative limitless power and grounded in unity, the mind is partially illusioned, limited and caught up in 'the separative action of diversity'. Because of its limitation and divisive nature mind works even as a power of ignorance.

While life is a link between mind and body, it is the creative energy of the Spirit that, operating within the parameters of physicality and mentality, supports and effects the formulations of the substance of matter and of mind. Life-energy is essentially the power of consciousness working and emerging in matter. It liberates mind from matter's stranglehold, it liberates all other higher powers too and makes it possible for their action in the material world. Likewise mind, too, is a power of consciousness that awakens in vitalised matter to its own awareness as well as to the awareness of all things around it. But mind and life are not restricted in their activity to material existence alone, they have their own planes of existence wherein their power of action is unrestricted, free and full. Life and mind are involved in matter, and seek to emerge and evolve out of it progressively because of a secret pressure exerted from above from their own native planes in addition to their own demiurge from within. Even as they are capable of subtler and greater and freer action, matter too is capable of refinement and transformation into subtler forms of the substance of Spirit. It contains within it the secret powers of life, mind, illumined mind, intuitive mind, Overmind and the gnosis.

The Concept of Mind in Yoga Mind, as the Gita puts it, is the cause of both man's bondage and release:

"*mana eva manusyiruum kiiranam bandha-moksayoh*" Liberation lies in the perfect control of mental modifications, *cittavrttis*. It therefore becomes necessary to know clearly the mechanism of the mind - its structure and its functions. Mind or *antahkarana*, according to most schools of Indian

philosophy, is composed of three vehicles, manas, ahamkara, and buddhi. Vedanta describes it as the antahkarana-catustaya. It is of the nature of not-Self and is the cause of both bandha and moksa. Citta in Patanjali's Yoga psychology is the mind-stuff or, rather, the mind without its thought-content. In the Yoga-system, mind is mutable and can evolve into cittas or modes of mental existence which are divided into five categories. Pramanas or right knowledge, viparyaya or false knowledge, vikalpa or imagination, nidra or sleep and smriti or memory. Whereas citta-bhumis are different psychological dispositions. There are five states of citta: ksipta-avastha, which is dominated by rajas, mudha-avastha which is characterised by tamas, viksipta-avastha which is a mixed state of sattva and rajas, ekagra-avastha in which only sattva reigns supreme and niruddha-avastha in which one is even above sattva, and beyond all modifications or change. For Yoga, mind is all-pervasive and infinite in number as each is related to a purusha. In the context of its all-pervasive nature, mind or citta is called the karana-citta. It is this that holds within itself the karya-citta as its manifestation. Again, it is karya-citta that further transforms itself as the asmita, the ten jnanendriyas and karmendriyas and the life faculties. Mind is continually changing into its many states, and is of the nature of flux. There are three distinct forms of its modifications - knowledge, willing and feeling. The citta comes into contact with the external world through the medium of the sense-modifications. In the first stage which is that of indeterminate perception the external world is presented before the buddhi.

THE PSYCHOLOGICAL CRISIS AND THE SUPERCONSCIENT

Humanity today is passing through a crisis; it is a crisis 'more mental than material.' We are mentally diseased, morally depleted and spiritually uprooted. It is a crisis of consciousness, a crisis of the soul. Our present crisis, as one American sociologist put it, is 'total, epochal and global'. Our civilisation is on the decline, its disintegration is imminent. The challenge calls for a consciousness-response capable of comprehending problems of cosmic dimensions. Psychological counselling and surface therapeutic treatments are absolutely insufficient to cure our deeper malaise.

There is a serious inner cleavage that calls for a total integration of personality. Our mental ill-health is the index of our psychological disintegration.

psychological change, an integral personality transformation. We have lost contact with our depth-dimension, we have lost the meaning of life itself. Ours is an age of anxiety and of ego-obsession resulting in psychological and emotional imbalances. Excessive and exclusive pursuit of physical sciences has created a vacuum of meaning in our lives; it has alienated us from the truth of our existence. Our individual ego is matched only by our group or nation ego in its blind self-aggrandisement. Though science has succeeded in breaking physical barriers between nations, the psychological distances still remain almost unaffected. There is, therefore, a genuine need to have a new centre of integration in our individual and group awareness, a new dimension of consciousness to take charge of personal, national and international affairs.

Individual self-interest needs to be symbiotically blended with cosmic awareness. The egocentric pattern of our present-day life-style has to be substituted by socio-centric and cosmo-centric attitudes. It is here that modern psychology can seek the guidance of Indian Yoga systems. It is in the creation of a spiritually integrated man that lies the key to a new world-order, which implies the action of the Superconscient. Adequate appreciation and application of both psychological and spiritual values in life is necessary for the establishment of an ordered and stable society. Technically and technologically we live in an atomic age, but mentally and emotionally we still belong to the Middle Ages. Psychoanalysis, analytical psychology and other psycho-bio-scientific approaches to

the understanding of the psychological process in the human situation have their limitations, and fail to cure the malaise of the race. The malady is too deep for the techniques evolved in Western psychology. Man, it is true, is a biological and psychological being, but he is a spiritual being too. We therefore need to go beyond modern psychology to accomplish the goals set before psychology by psychology itself. The Integral Yoga Psychology of Sri Aurobindo, both in its vision and action, encompasses the entire gamut of consciousness, transmutes the insights of Ancient Indian psychology and by presaging the shortcomings of psychological tools and techniques accomplishes the miracle of integral transformation of personality. There are hopeful signs of this new psychology entering more and more into the arena. The development of an Integral Yoga Psychology would be a powerful aid in cultivating and harnessing the manifold inner energies towards the highest fulfillment of the race as well as in the ushering in of a new world-order. It will also enable us to experience and explain satisfactorily the many higher planes of consciousness leading to the Superconscious. Man, at present, is not conscious of the subconscious, the subliminal and the Superconscious within.

He is aware only of his surface reality. Modern psychology is slowly becoming aware of the near depths, and not yet of the higher levels of consciousness. The aim of Integral Yoga Psychology is not only to discover them all, but to bring them into the open, into the part

and planes of human existence, and with their light and power transform them into the supernature of the Divine.

the physical mind is giving way to a deeper probe unfamiliar to the uninformed reason. But here, too, it seems to be bogged down by the common mistaken view that mind and spirit are the same, that all consciousness is restricted to the mind alone, and that the body is merely unconscious matter incapable of spirituality. But spirit and mind are not the same: mind is an instrument of consciousness.

Moreover, consciousness is not necessarily always spiritual. Also, it has to be realised that mind has parts, and not all the parts are spiritually inclined. While one part obeys the spiritual, the other can be strictly rational. If the psychic influence predominates, then it is the psychic mind. Psychology, no doubt, deals with mind and consciousness, but does not seek to find their true nature. It only tries to know their workings as well as the rule and law of these workings. Freud's psychoanalysis should never be associated with Yoga, for it takes up only the darkest and the most dangerous part of human nature - the lower vital - and attributes to it an action out of all proportion to its true role in human life. "Modern psychology is an infant science, at once rash, fumbling and crude. As in all infant sciences the universal habit of the human mind - to take a practical or local truth, generalise it unduly and try to explain a whole field of nature in its narrow terms - runs riot here. Moreover, the exaggeration of the importance of suppressed sexual impulses is a dangerous falsehood and it can have a nasty influence and tend to make the mind and vital more and not less fundamentally impure than before." 15 The subliminal has in it the secret of our surface existence and explains our surface activities, whereas the lower-vital subconscious is just a minor or an inferior part of it. The subliminal conceals a larger mind, a more powerful vital as well as a subtler physical consciousness. It is only by opening up to the spiritual and subconscious ranges of consciousness that both the subliminal and the surface nature can be purified. The lower subconscious is the darkest and the foulest part of human nature and should be handled with great caution and care, and with the right attitude. It is only after enriching the higher mind and the vital with the light and peace from above that one should turn to the subconscious and work for its purification. Sometimes the psychological process of purposeful indulgence may help in the exhaustion of a lower impulse, but more often it lends to continuous and repeated indulgence and its justification, and instead of

raising up the lower movements into the light and full knowledge of a higherbeing, it makes the subject a helpless victim of the ignorant nature. A guidance from a higher consciousness is always safe and a must for any desired change in the concealed subconscious.

INTEGRAL YOGA PSYCHOLOGY

- (i) Man by his very nature is spiritual. He is a dynamic psyche ever evolving, always integrating with the universe around him. He is a self-conscious mode of the infinite and the eternal though at present limited because of the compulsions of Nature's evolutionary process. He is a dual expression of both Being and Becoming, and manifests simultaneously the static and dynamic aspects of Reality. The static truth of his inmost existence - the impersonal eternal dimension - sanctions and supports, as it were, his creative nature, the historical dimension. The two dimensions, though distinguishable, are in fact inseparable. Integral Yoga Psychology aims at integrating the two dimensions with a view to intensify and advance the present evolutionary process. It attempts to bridge the gap between the distant ideal and the present human reality, - between the Superconscient wholeness and the existing limited self-awareness. According to Sri Aurobindo, this needs the intervention and supporting action of a cosmic and supracosmic consciousness-force, the Supermind. It is the Truth-Consciousness above that can unify this uniqueness of the individual with the relatedness of the universe in an ever glowing splendour of the transcendent. The three dimensions of the Divine the individual, the universal and the transcendent, are harmoniously and integrally effectuated in the action of the supramental.
- (ii) Man is essentially a psychological phenomenon. If psychology has to study man, it should reach and comprehend all the levels of his being, both inner and outer, and not limit itself to the mind. It is the Yogic approach to the phenomenon of man that gives an adequate account of human personality and carries with it a clarity and a certitude of its own. Man is not limited to his physical existence alone, he is beyond body, life and even mind. Psychology should therefore not restrict itself to the observation of his superficial nature. A whole world of supra-physical and spiritual phenomena have to be discovered and brought under control before psychology can hope to be a perfect and dynamic science. Our surface existence is only a part of our being, there are many other planes below and above that support and succour our external personality. For below our conscious nature is the massive Inconscient out of which life emerges. The Inconscient is much vaster, larger and deeper; it is the womb of our surface existence and its workings. Also, behind our frontal ego-nature is the kingdom of the subliminal with its manifold powers and provinces that determine and dictate our doings. Integral Yoga Psychology is founded upon the experience of the integral self as the harmonious and indivisible unity of uniqueness, relatedness and transcendence. The basic insights of Integral Yoga Psychology as set forth in the writings of Sri Aurobindo include:

The integral fullness or wholeness of the human-personality

- (1) The widest spectrum of experience ranging from the Inconscient to the Superconscient.
- (2) The synthesis and fulfilment of all yogic methods in the Integral Yoga of Sri Aurobindo.
- (3) The crowning vision of Integral Reality, and the realisation of the supreme potential of man.
- (4) The experience of the many planes or levels of consciousness reflecting the different dimensions of Reality.
- (5) The dynamic and creative union with the Supreme being resulting in the mounting

selfmanifestation of the Spirit.

WHAT IS ACADEMIC PSYCHOLOGY IN INDIA: PRE- INDEPENDENCE ERA; POST-INDEPENDENCE ERA; 1970S: THE MOVE TO ADDRESSING SOCIAL ISSUES; 1980S: INDIGENIZATION; 1990S: PARADIGMATIC CONCERNS, DISCIPLINARY IDENTITY CRISIS; ?

ACADEMIC PSYCHOLOGY IN INDIA: PRE-INDEPENDENCE ERA

The term Indian Psychology refers to the Psychologically relevant materials in ancient Indian thought. Usually this term does not cover modern developments in Psychology in India.

Modern Psychology at the beginning of the century emphasized sensation, perception and psychologists in India took out Indian theories of sensation and perception from the classics and create an Indian Psychology. For example Indian theories emphasise the notion that in perception the mind goes out through the senses and assumes the shape of the objects.

In 1934, Jadunath Sinha wrote a book on Indian theories of perception. As soon as Western Psychologists started studying cognition, Indian Psychologists started looking for Indian theories of cognition. In 1958, Jadunath Sinha wrote a book on Cognition. Later on modern Psychology started emphasising emotions, and in 1981, Jadunath Sinha wrote a book on Emotions and the Will.

The major part of ancient Indian scriptures (Hindu, Buddhist and Jain) emphasise self-realization, samadhi or nirvana. After 1960 Humanistic Psychology emerged and Psychologists became interested in paranormal dimensions of growth. Maslow's theory of self-actualization and transcendental self-actualization established the link to the major part of ancient Indian theories and methods and almost the whole of ancient Indian writings became psychologically relevant. Psychology of Consciousness, Parapsychology, Psychology of Mysticism, Psychology of Religion and Transpersonal Psychology borrow extensively from Indian writings.

The terms Oriental Psychology, Buddhist Psychology, Yoga Psychology, Jain Psychology, etc. are frequently found in modern psychological literature now. Many book lists in Psychology now include books on Yoga, Buddhism and Zen. There seems to be a paradigm shift in Western Psychology, a shift from the notion of mental disease and healing to personal growth, the reference point shifting from the statistical average or "normal" to the ideal or upper limits of man's potentiality.

The rudiments of the theory of consciousness can be traced back to the Indus valley civilization (6000 to 1500 B.C.). Artifacts of a man sitting in Padmasana have been obtained in excavations

The Swastika symbol was used in Indus valley script. Buddhist thought and methods (6th century B.C.) are in line with the objective spirit of modern science and the law of parsimony of science and Buddhism can be easily incorporated into a scientific framework.

The Psychological relevance of the four noble truths and eight-fold path and Sunya vada of Buddhism and Buddhist techniques of meditation are of considerable relevance in modern Psychology. Similarly Jain scriptures also are found to be relevant to Psychology in more than one way.

The Vedas date from about 1500 B.C. However, Upanishads (appendices to the Vedas, which date from 600 B.C.) which describe the Vedanta philosophy and provide the theoretical foundation of Jnana Yoga are of more direct relevance to Psychology.

The Bhagavat Gita gives a quintessence of Indian way of life and philosophy and it describes the four yogas, Karma, Bhakthi, Raja and Jnana. Several books have come on the psychological relevance of Gita. Maslow's theory of Meta-motivation is very similar to the concept of Nishkamakarma outlined in the Gita.

Patanjali's Ashtanga Yoga is a very systematic presentation of Rajayoga. Both Bhagavat Gita and Ashtanga Yoga are supposed to have been written around the turn of B.C. to A.D. Sankara's writings (8th century A.D.) on the different yogas as well as his Advaita philosophy are considered as classics in the area and are of great value to the Psychology of consciousness as well as personal growth. Modern interest in relaxation can be traced to studies on Savasana. Rising popularity of meditation practice links Psychology to Oriental religious practices and philosophy.

Indian literature on aspects of consciousness is vast, considering the classics and their commentaries. Mental states have been analyzed, classified and differentiated in detail. Similarly paranormal powers (siddhis) have been classified in detail. The process of personal growth and obstacles to growth have been examined thoroughly.

There is a great deal of maturity resulting from long experience in these areas reflected in the writings. Indian theories of linguistics, social behavior, crime, etc. are all based on the holistic approach and the broad-based intuitive understanding of behavior in contradistinction to Western theories which are piece-meal, analytic and situation specific.

The increasing importance given to the holistic approach and need for synthesis makes it possible to integrate modern Western Psychology with ancient Indian thoughts as well as methods.

THE PRE-INDEPENDENCE ERA

The Indian National Congress first convened in December 1885, though the idea of an Indian nationalist movement opposed to British rule dated from the 1850s. During its first several decades, the Congress Party passed fairly moderate reform resolutions, though many within the organization were becoming radicalized by the increased poverty that accompanied British imperialism. In the early 20th century, elements within the party began to endorse a policy of *swadeshi* ("of our own country"), which called on Indians to boycott of imported British goods and promoted Indian-made goods. By 1917 the group's "extremist" Home Rule wing, which was formed by Bal Gangadhar Tilak and Annie Besant the previous year, had begun to exert significant influence by appealing to India's diverse social classes.

In the 1920s and '30s the Congress Party, led by Mohandas (Mahatma) Gandhi, began advocating nonviolent noncooperation. The new change in tactics was precipitated by the protest over the perceived feebleness of the constitutional reforms enacted in early 1919 (Rowlatt Acts) and Britain's manner of carrying them out, as well as by the widespread outrage among Indians in response to the massacre of civilians in Amritsar (Punjab) that April. Many of the acts of civil disobedience that followed were implemented through the All India Congress Committee, formed in 1929, which advocated avoiding taxes as a protest against British rule. Notable in that regard was the Salt March in 1930 led by Gandhi. Another wing of the Congress Party, which believed in working within the existing system, contested general elections in 1923 and 1937 as the Swaraj (Home Rule) Party,

with particular success in the latter year, winning 7 out of 11 provinces.

When World War II began in 1939, Britain made India a belligerent without consulting Indian elected councils. That action angered Indian officials and prompted the Congress Party to declare that India would not support the war effort until it had been granted complete independence. In 1942 the organization sponsored mass civil disobedience to support the demand that the British "quit India." British authorities responded by imprisoning the entire Congress Party leadership, including Gandhi, and many remained in jail until 1945. After the war the British government of Clement Attlee passed an independence bill in July 1947, and independence was achieved the following month. In January 1950 India's constitution as an independent state took effect.

Psychology as an academic discipline made a new beginning in India in the first decade of this century. Review of research shows that Western theories and concepts still constitute the core of research and teaching programmes in most of the Indian universities.

This chapter argues that Indian psychologists live in two parallel worlds: one of west-oriented academic psychology to advance professional growth; and another of less formalized scholarship to satisfy their creative urges. As a result, academic psychology did not get enriched from diverse expertise and life experiences of Indian psychologists. Though psychology has traversed a long distance in India, lack of direction has cast doubts about the application of psychology in the context of a rapidly changing socio-economic scenario.

Psychology in India has remained dissociated from its own vast storehouse of knowledge inherent in the Indian philosophical texts. These scriptures and texts provide immense possibilities of developing psychological theories of self and human development. At the turn of the Millennium, psychology in India is returning to its roots and a new beginning seems to be in the offing.

For almost a century, academic psychology in India has continued to be an alien discipline. In the beginning of the last Century, psychology was imported lock-stock-barrel from the West and was first implanted in 1916 in Calcutta University. The Western model of research and teaching provided the basis on which Indian research grew for a long period.

For Indian psychologists trained in the western traditions, it has been a long journey to turn towards their own heritage and take Indian concepts and theories germane to understanding Indian social reality. Indeed, in this long history, concerns have been voiced from time to time to align psychology with contemporary social issues, so as to meet the challenges of rapid socioeconomic and global changes. Looking back, one gets an impression that psychology in India has come a long way to find its roots in its own native wisdom, though it still has to cover much ground to become a science of Indian origin. Throughout its existence as an alien implant, psychology has been struggling to ground itself in the Indian soil and adapt to local conditions.

Over the years this implant has grown, with branches spreading all over the country. However, it has not borne fruits as expected and has largely remained a sterile academic pursuit, as far as the real issues of national development are concerned.

The non-visibility of psychologists in various national forums gives rise to serious concerns about its relevance and future. What kind of psychology we aspire to have in the 21st century is contingent on a better understanding of the present state-of-the-art.

This chapter aims to examine the status of psychology in India as a scientific discipline, identifying the factors responsible for its retarded growth. This chapter also discusses the parallel movement now underway to rediscover the knowledge rooted in scriptures and folk practices, and explores its relevance in the present times. Three sets of arguments are put forward to explain the retarded growth of academic psychology in India.

One, which is more charitable, is the lack of a supportive intellectual climate. In a country where a vast population lives in a condition of subhuman poverty, and decisions about social developmental programmes are politically motivated, any scholarly pursuit is considered peripheral.

The academic institutions plagued by a rising student population, political manipulations and lack of funds have gradually become non-performers. There is no premium placed on excellence in teaching and research. Adair, Pandey, Begam, Pohan, and Vora (1995) conducted a study on 64 Indian psychologists through a mailed questionnaire. The survey revealed three major impediments to research productivity:

- (a) lack of supportive intellectual climate,
- (b) poor professional support, and inadequate research funding

Ostensibly, the lack of an academic culture and a non-supportive socio-political environment are greatly responsible for the prevailing state of affairs. It does explain the overall decline in the academic standards in the country.

It, however, throws no light on 'why is psychology in India lagging behind other sisterly disciplines, such as sociology, anthropology and economics?' It brings forth the second line of argument that there are some inherent limitations in psychology as a scientific discipline.

In recent years there have been several good publications which enable a critical evaluation of the development of psychology in India. Some of these writings (Dalal, 1990, 1996, 2002; Misra & Gergen, 1993; D. Sinha, 1986, 1996; J.B.P. Sinha, 1993) have critically evaluated the progress of psychology. The five surveys of research in psychology (Mitra, 1972; Pareek, 1980, 1981; J. Pandey, 1988, 2001, 2004) cover important research contributions since the beginning of the last century. Pareek and T.V. Rao (1974a), Pestonjee (1986), and NCERT (1981) compiled psychological measures developed in India. Reports prepared by the University Grants Commission (UGC, 1968, 1982, 1999) deal with teaching and research programmes in universities.

Some empirical studies (Adair, 1989) have examined the professional status of the discipline of psychology. More recently, Misra (in press), K. Kumar (2005, 2008), Pandey and Singh (2005), Paranjpe (2006) and Varma (2004) have provided incisive understanding of the current status of psychology in India. These publications have formed the basis of preparing this review chapter.

POST-INDEPENDENCE HISTORY OF PSYCHOLOGY IN INDIA

The history of the Republic of India began on 26 January 1950. The country had earlier become an independent dominion within the British Commonwealth on 15 August 1947

At the time of granting independence, the Muslim-majority north west and east of British India was separated into the Dominion of Pakistan, by the partition of India. The partition led to a population transfer of more than 10 million people between India and Pakistan and the death of about one

million people. Jawaharlal Nehru became the first Prime Minister of India and Sardar Vallabhbhai Patel became the Deputy Prime Minister and Minister of Home Affairs. The new Constitution of 1950 made India a secular and a democratic State.

Assassination of Mahatma Gandhi: The celebrations of independence had hardly died down when on 30 January 1948, a radical minded Hindu, Nathuram Godse, assassinated Gandhiji at Birla House, just before his evening prayers.

Refugee Problem: The Indian government had to stretch itself to the maximum to give relief to and resettle and rehabilitate the nearly six million refugees from Pakistan. By 1951, the problem of the rehabilitation of the refugees from West Pakistan was fully tackled.

However, the task of rehabilitating and resettling refugees from East Bengal was made more difficult by the fact that the exodus of Hindus from East Bengal continued for years. While nearly all the Hindus and Sikhs from West Pakistan had migrated in one go in 1947, a large number of Hindus in East Bengal had stayed on therein the initial years. However, as violence against Hindus broke out periodically in East Bengal, there was a steady stream of refugees from there year after year until 1971. Providing them with work and shelter and psychological assurance, remained a continuous and a difficult task.

Because of linguistic affinity the resettlement of the refugees from East Bengal could take place only in Bengal and to a lesser extent in Assam and Tripura. As a result, a very large number of people who had been engaged in agricultural occupations before their

displacement were forced to seek survival in semi-urban and urban contexts as the underclass.

Political Integration of India: At the time of independence, India was divided into two sets of territories—the first being the territories of “British India”, which were under the direct control of the Governor-General of India, and the second being the “Princely States”, the territories over which the Crown had suzerainty, but which were under the control of their hereditary rulers. In addition, there were several colonial enclaves controlled by France and Portugal. The political integration of these territories into India was a declared objective of the Indian National Congress, which the government of India pursued over the next decade. Through a combination of factors, Sardar Vallabhbhai Patel convinced the rulers of almost all of the hundreds of princely States to accede to India. Having secured their accession, they then proceeded to, in a step-by-step process, secure and extend the central government’s authority over these States and transform their administrations until, by 1956, there was little difference between the territories that had formerly been part of British India and those that had been part of princely States. Simultaneously, the government of India, through a combination of diplomatic and military means, acquired *de facto* and *de jure* control over the remaining colonial enclaves, which too were integrated into India.

The process, however, was not as successful in relation to the former princely State of Jammu & Kashmir, the accession of which to India was disputed by Pakistan, the State of Hyderabad, whose ruler was determined to remain independent, and the States of Tripura and Manipur, where active secessionist movements existed.

The Instruments of Accession were limited, transferring control of only three matters—Defence, Communication and External Affairs—to India, and would by themselves have produced a rather loose federation, with significant differences in administration and governance across the various States.

The first step in the process of complete merger, carried out between 1947 and 1949, was to merge

the smaller States that were not seen by the government of India to be viable administrative units either into neighbouring provinces, or with other princely States to create a “princely union”. The bulk of the larger States, and some groups of small States, were integrated through a different, four-step process. In return for agreeing to the extinction of their States as discrete entities, the rulers were given a privy purse and guarantees similar to those provided under the Merger Agreements.

First General Elections: Democracy took a giant step forward with the first general election held in 1951-52 over a four-month period. These elections were the biggest experiment in democracy anywhere in the world. The elections were held based on universal adult franchise, with all those twenty-one years of age or older having the right to vote. There were over 173 million voters, most of them poor, illiterate, and rural, and having had no experience of elections. The big question at the time was how would the people respond to this opportunity.

Reorganisation of States: Potti Sreeramulu’s fast-unto-death, and consequent death for the demand of an Andhra State in 1953 sparked a major re-shaping of the Indian Union. Pt Nehru appointed the States Reorganization Commission, upon whose recommendations, the States Reorganization Act was passed in 1956. Old states were dissolved and new States created on the lines of shared linguistic and ethnic demographics. The separation of Kerala and the Telugu-speaking regions of Madras State enabled the creation of an exclusively Tamil-speaking State of Tamil Nadu. On 1 May 1960, the States of Maharashtra and Gujarat were created out of the Bombay State.

POST-NEHRU INDIA:

Jawaharlal Nehru died on 27 May 1964. Lal Bahadur Shastri succeeded him as Prime Minister. In 1965 India and Pakistan again went to war over Kashmir, but without any definitive outcome or alteration of the Kashmir boundary. The Tashkent Agreement was signed under the mediation of the Soviet government, but Shastri died on the night after the signing ceremony. A leadership election resulted in the elevation of Indira Gandhi, Nehru’s daughter, as the third Prime Minister.

BIRTH OF NAXALISM:

The CPM had originally split from the united CPI in 1964 on grounds of differences over revolutionary politics, (equated with armed struggle) and reformist parliamentary politics. A section of the party, consisting largely of its younger cadres and inspired by the Cultural Revolution then going on in China, accused the party leadership of falling prey to reformism and parliamentary politics and, therefore, of betraying the revolution. They argued that the party must immediately initiate armed peasant insurrections in rural areas, leading to the formation of liberated areas and the gradual extension of the armed struggle to the entire country. To implement their political line, the rebel CPM leaders launched a peasant uprising in the small Naxalbari area of northern West Bengal. The CPM leadership immediately expelled the rebel leaders accusing them of left-wing adventurism, and used the party organization and government machinery to suppress the Naxalbari insurrection. The breakaway CPM leaders came to be known as Naxalites and were soon joined by other similar groups from the rest of the country. The Naxalite movement drew many young people, especially college and university students, who were dissatisfied with existing politics and angry at the prevailing social condition.

INDIA GOES NUCLEAR:

India achieved a major success in terms of a breakthrough in science and technology when the

Atomic Energy Commission detonated an underground nuclear device at Pokhran in the desert of Rajasthan on 18 May 1974. The Indian government, however declared that it was not going to make nuclear weapons even though it had acquired the capacity to do so. It claimed that the Pokhran explosion was an effort to harness atomic energy for peaceful purposes and to make India self-reliant in nuclear technology.

GREEN REVOLUTION AND OPERATION FLOOD:

India's long-standing food crisis was resolved with greatly improved agricultural productivity due to the Green revolution. The government-sponsored modern agricultural implements, new varieties of generic seeds and increased financial assistance to farmers that increased the yield of food crops such as wheat, rice and corn, as well as commercial crops like cotton, tea, tobacco and coffee. Increased agricultural productivity expanded across the States of the Indo-Gangetic plains and Punjab. Under Operation Flood, government encouraged production of milk and improved rearing of livestock across India. This enabled India to become self-sufficient in feeding its own population, ending two decades of food imports.

EMERGENCY:

Economic and social problems, as well as allegations of corruption caused increasing political unrest across India, culminating in the Bihar Movement. In 1974, the Allahabad High Court found Indira Gandhi guilty of misusing government machinery for election purposes. Leading strikes across India, that paralyzed its economy and administration, Jay Prakash Narayan even called for the Army to oust Mrs. Gandhi. In 1975, Mrs. Gandhi advised President Fakhruddin Ali Ahmed to declare a state of emergency under the Constitution, which allowed the Central government to assume sweeping powers to defend law and order in the nation. Many civil liberties were suspended and elections postponed at national and State levels. Non-Congress governments in Indian states were dismissed, and nearly 1,000 opposition political leaders and activists were imprisoned and a programme of compulsory birth control was introduced.

Although, India's economy benefited from an end to paralyzing strikes and political disorder, many organs of government and many Congress politicians were accused of corruption and authoritarian conduct. Police officers were accused of arresting and torturing innocent people.

POST EMERGENCY:

Mrs. Indira Gandhi called for general elections in 1977, only to suffer a humiliating electoral defeat at the hands of the Janata Party, an amalgamation of opposition parties. *Morarji Desai became the first non-Congress Prime Minister of India.* The Desai administration established tribunals to investigate Emergency-era abuses, and Indira and Sanjay Gandhi were arrested after a report from the Shah Commission. But in 1979, the coalition crumbled and Charan Singh formed an interim government. The Janata Party became intensely unpopular due to its internecine warfare, and the fact that it offered no leadership on solving India's serious economic and social problems. Ultimately, the Janata Party split into its original constituents. The Janata Sangh emerged in its new avatar as the Bharatiya Janata Party.

Indira Gandhi and her Congress party splinter group, Congress (Indira) were swept back into power with a large majority in January 1980. But the rise of an insurgency in Punjab jeopardized India's security. In Assam also there were many incidents of communal violence between native villagers and refugees from Bangladesh, as well as settlers from other parts of India. When Indian forces, undertaking Operation Blue Star, raided the hideout of Khalistan militants in the Golden Temple—

Sikhs' most holy shrine— in Amritsar, in June 1984, the inadvertent deaths of civilians and damage to the temple building inflamed tensions in the Sikh community across India. Northeast India was also paralyzed owing to the ULFA's clash with government forces.

On 31 October 1984, Prime Minister Indira Gandhi's own Sikh bodyguards assassinated her, and anti-Sikh riots erupted in Delhi and parts of Punjab, causing the deaths of thousands of Sikhs.

POST INDIRA GANDHI:

After the assassination of Mrs Indira Gandhi, the Congress party chose Rajiv Gandhi, her older son, as the next Prime Minister. The Parliament was dissolved and Rajiv led the Congress party to its largest majority in history (over 415 seats out of 545 possible) in the general elections, reaping a sympathy vote over his mother's assassination.

Rajiv Gandhi initiated a series of reforms—the license raj was loosened, and government restrictions on foreign currency, travel, foreign investment and imports decreased considerably. This allowed private businesses to use resources and produce commercial goods without government bureaucracy interfering, and the influx of foreign investment increased India's national reserves. Rajiv's encouragement to science and technology resulted in a major expansion of the telecommunications industry, India's space program and gave birth to the software industry and information technology sector.

In 1987, India brokered an agreement between government of Sri Lanka and rebel LTTE, and agreed to deploy troops for peacekeeping operation and to disarm the Tamil rebels. But the Indian Peace Keeping Force became entangled in outbreaks of violence—ultimately ending up fighting the Tamil rebels itself, and becoming a target of attack from Sri Lankan nationalists.

Rajiv Gandhi's image as an honest politician was shattered when the Bofors scandal broke, revealing that senior government officials had taken bribes over defence contracts with the Swedish manufacturer. As the Defence minister in Rajiv Gandhi's government, Mr V.P. Singh had unearthed the Bofors scandal, and was sacked from the party and office. Becoming a popular crusader for reform and clean government, he led the Janata Dal coalition to a majority in 1989 elections. He was supported by BJP and the Leftist parties from outside. Becoming Prime Minister, Singh started to implement the controversial Mandal commission report, to increase the quota in reservation for low caste Hindus. The BJP protested these implementations, and took its support back, following which he resigned. Chandra Shekhar split to form the Janata Dal (Socialist), supported by Rajiv's Congress. This new government also collapsed in a matter of months, when Congress withdrew its support.

Post Rajiv Gandhi: On 21 May 1991, while former Prime Minister Rajiv Gandhi campaigned in Tamil Nadu on behalf of Congress (I), a Liberation Tigers of Tamil Eelam (LTTE) female suicide bomber assassinated him and many others. In the elections, Congress (I) won 244 Parliamentary seats and put together a coalition, returning to power under the leadership of Mr P.V. Narasimha Rao. This Congress-led government, which served a full 5-year term, initiated a gradual process of economic liberalisation and reform, which opened the Indian economy to global trade and investment. India's domestic politics also took new shape, as traditional alignments by caste, creed, and ethnicity gave way to a plethora of small, regionally-based political parties.

In 1992, India was rocked by communal violence between Hindus and Muslims that killed over 10,000 people, following the **Babri Mosque demolition** by Hindu extremists in the course of the Ram Janmabhoomi dispute in Ayodhya. The final months of the Rao-led government in the spring of 1996 suffered the effects of several major political corruption scandals, which contributed to the worst electoral performance by the Congress Party in its history as Bharatiya Janata Party emerged as largest single party.

Era of Coalitions: The Bharatiya Janata Party (BJP) emerged from the May 1996 national elections as the single-largest party in the Lok Sabha but without enough strength to prove a majority on the floor of the Parliament. Under Prime Minister Atal Bihari Vajpayee, the BJP coalition lasted in power 13 days. With all political parties wishing to avoid another round of elections, a 14-party coalition led by the Janata Dal emerged to form a government known as the United Front. A United Front government under former Chief Minister of Karnataka H.D. Deve Gowda lasted less than a year. Congress (I) withdrew support in March 1997.

Inder Kumar Gujral replaced Deve Gowda as the consensus choice for Prime Minister of a 16-party United Front coalition. In November 1997, the Congress Party again withdrew support for the United Front. New elections in February 1998 brought the BJP the largest number of seats in Parliament (182), but this fell far short of a majority. On March 20, 1998, the President inaugurated a BJP-led coalition government with Mr Vajpayee again serving as Prime Minister.

First Sikh Prime Minister of India: In January 2004, Prime Minister Vajpayee recommended early dissolution of the Lok Sabha and general elections. The Congress Party-led alliance won a surprise victory in elections held in May 2004. Manmohan Singh became the first Sikh Prime Minister of India.

First Female President of India: In 2007, Ms Pratibha Patil became India's first female President. Long associated with Nehru-Gandhi family, Pratibha Patil was a low-profile Governor of Rajasthan before emerging as the favoured Presidential candidate.

2009 Elections: In the 2009 General Election, the Congress-led United Progressive Alliance won a convincing and resounding 262 seats, with Congress alone winning 206 seats. Mr Manmohan Singh was re-elected as the Prime Minister

2014 Elections: On 16 May 2014, ending the BJP's 10-year political 'vanvaas', Narendra Damodardas Modi scripted a never-before win for the party, helping it cruise to power on its own steam at the Centre by breaking a three-decade old trend of fractured mandates. BJP attained a comfortable majority of 282 seats on its own.

20TH CENTURY PSYCHOLOGY IN INDIA:

A western implant Indian scriptures dating back thousands of years extensively dealt with the analysis of states of consciousness and contents of mental activities. The important feature of this early exposition is that it is mostly experiential and is a culmination of centuries-old tradition of self-verification. In the ancient Indian scriptures no rigid distinction among religion, philosophy, and psychology was maintained.

The overriding consideration was to help individuals in their pursuit of self-realization and liberation from the miseries of life. In this world-view, the source of all suffering was presumed to be within the person, and thus the emphasis was on exploring the 'world within', to alleviate the suffering. The goal was to seek enduring harmony of spirit, mind and body for everlasting happiness. The yoga system evolved very sophisticated mind-control techniques in this pursuit. In contemporary literature this broad field of inquiry is referred to as „Indian Psychology“.

These rich traditions, however, had little bearing on academic psychology implanted in India as a Western science during the British rule. Scientific psychology with laboratory work was a novel approach, not having any parallel in traditional Indian psychology. Psychology was first introduced as a subject in the Philosophy Department at Calcutta University.

Brojendra Nath Seal who was the then King George V Professor of Mental and Moral Philosophy drafted the first syllabus for experimental psychology and established a laboratory for demonstration purpose in 1905. Eleven years later this laboratory was upgraded as the first psychology department, the Department of Experimental Psychology.

Narendra Nath Sengupta, who chaired this department, had his education at Harvard University with Hugo Munsterberg, a student of William Wundt. Laboratory research at Calcutta in the areas of depth perception, psychophysics, and attention inspired early work at other centres. Recognizing the scientific nature of research, psychology was included as a separate section in the Indian Science Congress in 1923.

Thus, psychology in India at an early stage acquired the status of a science along with physical and biological sciences, something which Western psychology achieved only after a long struggle. The Indian Psychological Association was founded in 1924 and the Indian Journal of Psychology, the first psychology journal in India, appeared the very next year.

Before these experimental traditions could consolidate, Sengupta left Calcutta. He was succeeded by Girindra Shekhar Bose. Being a medical doctor and a psychiatrist who was in close contact with Sigmund Freud, Bose showed much enthusiasm to promote psychoanalysis.

In 1922 he founded the Indian Psychoanalytic Society, which two years later was affiliated with the International Psychoanalytic Society. Bose received his Ph.D. from Calcutta on the 'concept of repression', the first Ph.D. from any Indian University in psychology. He established the Lumbini Park Mental Hospital in Calcutta in 1940, and in 1947 brought out a journal 'Samiksha'.

The Department started an Applied Psychology Wing in 1938, when Jung, Meyers, and Spearman were invited to the Silver Jubilee Session of the Indian Science Congress.

TWO WORLDS OF INDIAN PSYCHOLOGISTS

The concepts and theories in Western psychology have their genesis in the social upheavals in Europe in the 19th Century with the metamorphosis from an agrarian to an industrial society. The discipline evolved to comprehend the complex social realities and the problems of industrialization. With the imperial expansion of modern capitalism, the influence of western knowledge in the colonized societies was inevitable. The popularity of English-medium education made writings of western thinkers accessible to Indian scholars.

A large body of this knowledge was alien, even in contradiction to that which was prevalent in the colonized traditional societies. The contradictions were more glaring in colonies, like India, having

a strong sense of cultural identity and a rich heritage of scholarly work. In the West, psychology had moved away from theology and philosophy, and had developed its own methods of inquiry based on the natural science models.

Indian psychologists saw that in applying western psychology there was an opportunity of developing a secular identity distinct from that of religion and philosophy, which was not possible within indigenous intellectual traditions integrating philosophy, spirituality and psychology.

Moreover, due to the neglect of many centuries, Indian psychology was not well equipped to examine the contemporary world and did not have tools to explain the existing social and moral decay of the Indian society. There were no new concepts, theories and methods in Indian psychology applicable to the changing individual and social order.

How Indian psychologists before Independence lived in two different worlds can be illustrated with some examples. Sir Brojendra Nath Seal, who established the first psychology laboratory in the country to promote experimental psychology, was a great historian of ancient Indian science and was the inspiration for Jadunath Sinha to bring out his monumental work on Indian psychology. N. N. Sengupta who was trained to be an experimental psychologist had a large number of non-empirical papers in scientific journals.

His writings covered the whole range from the psychology of mysticism to the psychology of Western dance. Sengupta did not stay in Calcutta for long and joined the Philosophy Department at Lucknow University. There he coauthored a book with an eminent sociologist, Radhakamal Mukherjee, 'Introduction to Social Psychology' in the year 1928. The orientation of this book was more sociological than psychological. As Rajanarayan (1983) wrote in his biographical note, he turned religious and got interested in mystical traditions and published work in this area. Girindra Shekhar Bose had, along with his important work in the area of psychoanalysis, serialized an interpretation of the holy Gita in the prestigious Bengali magazine 'Pravasi' without any direct reference to psychoanalytic concepts (Nandy, 1995). Bose also wrote a long commentary on Indian sacred texts in Bengali, titled 'Purana Pravesa'.

Gopalswami, who was at Mysore, came from an affluent background and maintained interest in two diverse fields - intelligence testing and animal laboratory work and besides, he had his own private radio station and was involved in various cultural activities. These illustrations are cited to give some clues about how Indian psychologists managed to live simultaneously in two worlds with little overlap. Thus it is no surprise that Indian psychologists remained apolitical all along.

There is no reflection in their work of the predominant social and political movements, even that of the freedom movement. Indian psychologists remained on the edge of the society, as far as their professional activities were concerned. Their research lacked continuity, commitment and conviction. The situation changed only marginally after Independence.

It may be argued that a vast majority of Indian psychologists have shied away from Indian psychological perspectives because of this attitude and the religio-philosophical context in which those perspectives are embedded. But, paradoxically a majority of them share the same socio-cultural context with the rest of the Indian population and are guided by the same religio-philosophical perspectives, which have shaped the attitudes, emotions, motivations, morals, values, etc., of the Indian masses in their day-to-day living! As Kiran Kumar (2008) observed, this situation has created some kind of a split in the personality – psychologist as a professional vs. psychologist as a person – and it has contributed for lack of creativity and originality in what one does, and draining of personal

resources and energy resulting in „burn out“ among many.

A psychologist in his/her role as a scientist conducts the professional activities with one set of assumptions and beliefs and as a person lives and acts with another set of assumptions and beliefs among fellow humans.

One reason why Indian psychologists could live in two parallel worlds was probably because the colonial rulers did not see much utility of psychology in consolidating their empire. This, for example, was not true in the case of sociology and social anthropology, which had much to contribute to the smooth functioning of the colonial administration in India (Dhanangare, 1985).

Indian culture and society was totally unfamiliar to the colonial officials when they first arrived. The unique systems of caste, religion, tribal and rural communities, rituals, beliefs, traditions were all baffling to an Englishman. These had no parallel in the experiences of the Western societies.

Thus, in the absence of proper understanding of Indian social realities the colonial administrators were facing many problems in their smooth functioning. There was much urgency and support for research on these topics.

Neither Indian psychology nor western psychological research held any such promise and were largely ignored. It is understandable that the Britishers did not promote psychology in India in the same way as they did in the case of sociology and social anthropology.

THE 1970S CRISIS: THE CORE DEBATES

Since the growth of knowledge is socially conditioned, the developments of psychology in India including its theories and concepts need to be appreciated in the local and global historical and sociocultural matrix in which the country has been positioned. Being a developing country with millennia-old culture, a richly diverse society, and a two-century-long colonial past, India is currently aspiring to emerge as a self-reliant and economically strong nation. Faced with the challenge of socioeconomic transformation, the country has been engaged in efforts toward industrialization, modernization, and globalization.

Navigating through this difficult terrain has been a complex challenge and has shaped the developments in the academic disciplines also. India has been engaged with rapid growth of higher education and rapid expansion of professional institutions to meet the increasing demand for trained personnel in various service sectors like health, administration, banking, police, military, and management. The cultural complexity of India due to diversity in ecology, language, religion, family structure, and uneven introduction of technology has put a challenge before the planners to ensure social welfare through democratic processes. This context has shaped the course of higher education in general and psychology in particular.

The challenge to relate India's past and modern psychology was a main concern in the early period and continued since then. In fact, the search for a distinct identity for psychology in the Indian context has remained a key issue. Theoretical innovations came from the real world as well as the difficulties faced in applying psychological knowledge to the diverse problems faced in the Indian conditions. In the course of the disciplinary journey, the theoretical-conceptual ambience of the works of Indian psychologists has undergone several shifts in themes, alignments, and emphases.

The teaching and research in modern psychology began largely as an extension of the EuroAmerican tradition in the British period. Its initial emphasis was not so much on questioning and doubting the Western concepts and methods, but on preserving the essential configuration of the discipline and keeping it as similar to the one in the Western world, as possible. We also note that there existed a tradition of British psychoanalysts who tried to offer interpretations of the Indian psyche to justify the British rule.

(Citing Christine Hartnack's work Vahali (2011) has discussed at length how early British psychoanalysts tried to create universal psychoanalytic conceptualizations that explain away Indian experiences of selfhood, or view them as essentially inferior, less worthy or simply pathological, or otherwise deficient. It acted as a tool to justify social oppression and colonial rule). In the mainstream critical paradigmatic questions of ontology and epistemology were sidelined to give space for the newly emerging positivist scientific enterprise. We find that the Western model of research and teaching provided the initial necessary direction to Indian psychologists. Dependence on Western thought was deemed legitimate owing to unexamined theoretical suppositions about the universality of psychological knowledge. It was largely in the 1970s that many psychologists raised the issue of insufficient and inadequate attention to social psychological problems.

The Indian psychologists realized that they had been indifferent to the vast and rich collection of knowledge inherent in the Indian texts. However, the commitment to scientific inquiry was venerated and debates related to the philosophy of science and related arguments could not receive due attention until the 1980s (Mukherjee 1980; Misra and Gergen 1993; Varma 1995). Also, there has been a constant pressure for problem solving and application in the social world (Sinha 1986).

EARLY EFFORTS

Keeping in mind the colonial background of modern learning in India, the mandate of initiating scientific psychology in the prevalent Wundtian tradition and subsequently in the behaviorist tradition was a natural choice. The eagerness to attain an independent identity for the discipline constituted the package of academic delivery consisting of empirical work, positivist metatheory, a universalistic stance, and the presumption of cultural immunity of psychological concepts and theories.

In terms of the institutional structure, psychology was earlier a part of philosophy departments. Separate psychology departments were started largely between 1940 and 1960. In order to maintain a separate identity, the teaching and research practices opted to fashion themselves as differently as possible from the parental discipline of philosophy and similar to the physical and natural science disciplines. To this end, they over-emphasized experimental psychology and psychometry – the distinctive features of the new science – and made them the core of psychology curricula which continues till today. Indeed, empiricism and quantification made possible the flourishing of an empiricist-positivist brand of psychology aimed at generating and testing nomothetic laws as objectively as possible.

However, it will be a mistake to ignore another feature of the academic prowess of the first generation of Indian psychologists.

They were also cognizant of their cultural roots and tried to address the academic as well as non-academic audiences. In a pioneering work entitled *The Science of the Emotions*, Bhagwan Das (1908) presented a rich account of the Indian science of affect. G. S. Bose wrote about the

Upanishads and mythology in Bangla language and had an academic fascination for psychoanalysis (see Dalal 2002).

Early researchers did attend to the theoretical issues and noted the importance of traditional knowledge but did not reject modern theories. It is interesting to note that even during the early part of the development in India, many indigenous lines of inquiry were also prevalent. Examples that highlight this trend include Asthana's (1950) work on Sāṃkhya theory of personality and Indra Sen's (1986) elaboration of the integral psychology of Sri Aurobindo. E.G. Parameshwaran started research on the Triguṇa (sattva, rajas, and tamas) theory (Uma et al. 1971) which has been followed by several studies (see Salagame 2011).

We also find works on the Indian typology of personality (Krishnan 1976/2002) and tantra (Mukerji 1926). Some notable works were undertaken from the Western tradition for further study. For instance, Asthana (1960) proposed that perceptual distortion is the function of the valence which an object acquires from the field structure in which it exists.

In this way he tried to resolve the differences between gestalt and learning theories and incorporated Lewin's field theory. In the area of learning theories, the S-R theory was challenged by Kothurkar (1968).

A Socially Relevant Psychology In the 1980s, several lines of investigation across many domains of social psychological processes showed that many of the phenomena reported in Western research literature required different explanations rooted in the Indian cultural milieu. Examples of this kind are found in the areas of social cognition. Thus predictions from attribution theory with socially and culturally specific causal categories were tested for understanding achievement, health, and other aspects of human behavior (Dalal 1988).

The change took place when psychologists found the applications of Western theories/methods to be either ineffective or irrelevant in real life situations in India. A selective overview of some of these developments in key areas is presented below. Human cognition: Researches on attention, emotion, and consciousness (see Srinivasan 2011), by using multiple methods and approaches, have shown cross-cultural aspects of emotion as well as of meditation, in terms of underlying neurophysiology. There are also researches on philosophical aspects of cognition that view cognition and other mental phenomena as central to the functioning of all living beings.

To put it another way, the fundamental principles governing cognition run from a single cell to human societies. Planning is a key intellectual function.

Extending the earlier work on PASS (Planning, Attention, Successive, and Simultaneous Processes) theory, Das et al. (2000) have brought out its significance in various cognitive functions.

PSYCHOLOGY OF POVERTY AND DEPRIVATION:

The study of poverty and deprivation has been an important area of research where researchers in different parts of the country (e.g., Rath at Bhubaneswar, A.K. Singh at Ranchi, D. Sinha at Allahabad, L.B. Tripathi and G. Misra at Gorakhpur) moved in many directions and have mapped the diverse effects of poverty, social disadvantage, and deprivation (for a comprehensive review see Misra and

Tripathi 2004). Most of these studies have situated deprivation in the experiential-environmental context and have traced its detrimental influences back to aspects of development

The detrimental effects of poverty are accentuated by the unfavorable proximal environment of the child.

Thus, intervention should address not only the cognitive-attentional drawbacks of the children but also the conditions prevailing in the family and school settings. They should be planned to create in the people a sense of empowerment to effect change in their life conditions. Unfortunately, the planning rooted in the Western model of development often ignores the traditional attitudes, beliefs, and values, and considers them antithetical to development ideology.

There is growing evidence that social-psychological problems of Indian society are now being increasingly addressed by psychologists.

THE CHALLENGE OF ACHIEVEMENT:

The economic and social development was an important concern for a developing country like India. The theoretical analysis by McClelland underscored the significance of achievement motivation (n-Ach) as a driving engine for development. The lack of emphasis on individualistic and competitive spirit and independence were identified as the main causes of underachievement. This became the basis for a major intervention program at Kakinada in Tamil Nadu, as reported in *Motivating Economic Achievement* (McClelland and Winter 1969). It provided impetus for promoting entrepreneurship.

The relevance of achievement motivation theory was, however, Indian challenged (e.g., Sinha 1968). The perceived value of various achievement goals is determined by the expectations of significant others. The concepts of "extension motivation" (Pareek 1968), "dependency proneness" (Sinha 1968), "achievement value" (Mukherjee 1974), and "dissatisfaction-based achievement motivation" (Mehta 1972) are important contributions.

MOVE TOWARD INDIGENIZATION

The indigenous thought systems remained neglected because there was a strong aversion toward them owing to doubts regarding their scientific status, contemporaneous relevance, and ontological suppositions (see Gergen et al. 1996). Psychological theories and constructs were taken as intrinsically biological, materialistic/objective in content, and quantitative in methodological approach.

Therefore psychology, like other natural and physical sciences, was thought to be culture and psychological processes as distributed/shared uniformly across diverse cultures and sub-cultures. This spurred the need for a radical change in cross-cultural psychology's universalist stance, and its almost exclusive focus on the discovery of panhuman patterns of behavior.

"There was an implicit assumption that the definition of... concepts and their measurement as proposed by the Western research workers will also hold good in our cultural context" (Mukherjee 1980). The signs of efforts to outgrow the alien frame were noticed in the 1970s. The search for a new identity became a major question. Culture-specific concepts, and a search for culturally appropriate methods and tools were emphasized and the relevance of culture was realized. In this context, the interaction with cross-cultural and cultural psychologists has provided important impetus. Gradually, blending scientific ways with indigenous concepts emerged as an important academic agenda (Sinha 1997). Ramanujan (1990) has emphasized context sensitivity as the key feature of Indian

way of thinking. Critical reflections (Misra and Gergen 1993; Nandy 2004; Varma 1995) have drawn attention to the limitations of natural science-based approaches and to new possibilities. It was realized that an understanding of Indian social reality would benefit from indigenous psychological knowledge and the discipline should contribute to the programs of socioeconomic development. Rao (2002, 2011) has discussed human cognitive processes from the perspective of

Sāṃkhya Yoga system. According to this system, there are two principles that govern our existence – puruṣa (consciousness) and prakṛti (matter).

Puruṣa is pure consciousness and has no quality or characteristics of its own; it is inert and formless. Prakṛti, on the other hand, is the material basis of our being. In Yoga, citta denotes the functional mind, which comprises of not only the cognitive processes, the ego and the senses, but also contains instinctual tendencies (vāsnās) inherited from previous lives and the effect of past actions in the present life (saṃskāras).

They influence our cognitions and predispose us to behave in certain ways. In Yoga, citta controls our actions. Information processing in citta may take place at three levels that is, buddhi, ahaṃkāra (egoic self), and manas. Manas, the central processing unit, selects information provided by the sensory system and processes them.

Ahaṃkāra (the emotional self) appropriates the processed information from manas and considers it as required by the perceiving person. And, buddhi decides and plans the actions and reactions in an appropriate manner.

At the start of the 1960s, American social psychology was a thriving and active field of study. The discipline was still a relatively new one, but it had prospered during and after World War II, contributing to and directing wartime work on a variety of topics including attitudes, morale, rumor, propaganda, prejudice, leadership, and intergroup conflict (Capshew, 1999; Faye, 2007, 2011; Herman, 1995). Social psychology, which had maintained a rather marginal existence since the early 1900s, therefore grew significantly in the immediate postwar period: from 1948 to 1960, membership in the Social and Personality Psychology division of the American Psychological Association grew by 297%, a number exceeded only by the growth of the division of School Psychology (Tryon, 1963).

The period immediately following the War has been described by some as the “golden age” of social psychology (House, 2008; Sewell, 1989), characterized by interdisciplinary teams of researchers working on socially relevant issues with substantial federal support (House, 2008).

It was a period when many of the classic and well-known studies were done, including Leon Festinger’s (1957) work on cognitive dissonance, Solomon Asch’s (1951) conformity research, and Stanley Milgram’s (1963) work on obedience to authority.

These classic studies seemed to demonstrate the possibilities of social psychology in uncovering repeatable, robust effects and in addressing significant, real-world phenomena ranging from seemingly irrational cult behavior to the role of obedience in the Holocaust. Furthermore, these years were strikingly productive ones for social psychology, as judged by the sheer number of studies conducted, the growth in methodological approaches, and the amount of data collected (Cartwright, 1979). The field also began to acquire the markings of an established discipline in the postwar period, including the founding of two societies: the Society for Experimental Psychology in 1965

and the Society for Personality and Social Psychology in 1974.

A number of different journals were also established, including the *Journal of Personality and Social Psychology* and the *Journal of Experimental Social Psychology*, both founded in 1965. The golden age, however, was rather short-lived. The late 1950s and early 1960s witnessed a noticeable decline in the optimism and self-assuredness of social-psychological writings and internal criticisms began to pepper the literature (Allport, 1954; Asch, 1952; Sears, 1951).

Furthermore, the post-war pronouncements of the vast promise and potential of social psychology are noticeably absent during this period (Collier et al., 1991). In 1948, social psychologist Dorwin Cartwright had noted that the war had brought the field to maturity and a year later, he spoke of the "growing prestige of social psychology" (Cartwright, 1949, p. 199). By 1979, however, he noted a distinct change:

"the general level of excitement that characterized social psychology immediately after the war has all but disappeared" (Cartwright, 1979, p. 87). Otto Klineberg similarly noted that the self-confidence of the postwar period "has yielded in recent years to growing doubts and the search for new directions" (Klineberg, 1976, p. 156).

Indeed by the 1960s and 1970s, social psychology appeared in the literature as a field that had once had excellent prospects for a bright and productive future but had somehow failed to live up to these early expectations.

PROBLEMS OF METHOD

The 1970s crisis was a multifaceted one, involving several interrelated and contentious issues. Not everyone felt a crisis was at hand, and those that did could not agree on the central problems of the field or the causes of those problems. Nonetheless, the first and perhaps most visible concern leading up to a declaration of crisis was a dissatisfaction with the dominance of laboratory experimentation.

Psychologists, modeling their approach on that of the natural sciences and particularly German physiology and psychology, had adopted experimentation in the late nineteenth century and by the start of the twentieth century, more than 40 psychological laboratories had been established (Benjamin, 2000; Danziger, 1990). Social psychology soon followed suit and experimentation

gained prominence in the 1920s and '30s, when social psychology had begun moving towards disciplinary status as a subfield of general psychology (Danziger, 2002). In 1937, psychologist Stuart Henderson Britt aptly summed up the approach that would come to dominate social psychology throughout the twentieth century: Social psychology of the "present" can be typified by one word: empirical. The empirical method may be characterized by three important techniques: the experimental method; the use of first-hand observation; and the employment of statistics (Britt, 1937, p. 464). Britt went on to note that the empirical method, and particularly experimentation, was the primary method of distinguishing social psychology from social philosophy.

With increased sophistication in statistical techniques, the adoption of operationism, and the incorporation of the language of variables (Danziger, 1997), experimentation gained an even stronger foothold and by the 1960s, it had become the distinguishing mark of a scientific social psychology.

In 1949, approximately 30 percent of studies in the leading social psychology journal involved some form of experimental manipulation; by 1969, this number had risen to 87 percent (Higbee & Wells, 1972). In the early 1960s, however, the experimental method came under considerable scrutiny in the social-psychological literature.

Several scholars began publishing results that questioned the validity of such experiments (Orne, 1962; Rosenthal, 1966; Rosenthal & Rosnow, 1969). These authors demonstrated that experimental results may be strongly influenced by the artificial mechanics of the experiment.

Martin Orne, for example, argued that research subjects are not passive receivers of experimental stimuli; instead, they actively interpret and give meaning to the experimental situation, seek out cues regarding researchers' hypothesis, and frequently attempt to act as "good subjects," trying to help confirm hypotheses.

The experimental situation, Orne (1959, 1962) argued, contains cues or "demand characteristics" that participants use to try to ascertain the purpose, meaning, or goal of the situations in which they find themselves. These cues become strong stimuli for participant behavior.

In this way, the experiment becomes a social problem-solving situation for participants and resulting behaviors may be due in large part to demand characteristics rather than to the variables that are of direct interest to the researcher.

PROBLEMS OF RELEVANCE

Related to discussions of method was the debate regarding the social relevance of social-psychological findings. In a 1974 survey of graduate students and faculty members in psychology, half of the respondents indicated that psychology's lack of relevance to real-world social problems was one of its gravest difficulties (Lipsey, 1974).

In this same vein, the first public diagnosis of a disciplinary crisis came in an article titled "Crisis in social psychology: The relevance of relevance" (Silverman, 1971). In this article, Irwin Silverman noted that despite serious external pressures to produce results relevant to pressing social problems, "social psychologists have not provided much data that are relevant to social ills" (p. 583). Silverman went on to argue that the problem of relevance was in fact a direct result of problems of method: data from social psychology gathered in artificial laboratory experiments "may relate very much to the motives and feelings and thoughts of subjects about their role in the experiment and very little to their lives outside of it" (p. 584).

Others concurred with this assessment, noting that the experimental situation was a highly artificial one, involving groups of strangers rather than individuals embedded in social situations and social relationships. Because of this, social psychology did not reflect reality and therefore had little to say about real-world phenomena (Gergen, 1973).

Other aspects of experimentation, including the use of college students as participants, were also pinpointed as the reason behind social psychology's lack of relevance in the world outside the laboratory (Weber & Cook, 1972). Even classic studies in the field that seemed to be highly socially relevant were not immune to such critiques. In fact, they became exemplars of the irrelevance of the field.

This was the case with Milgram's obedience research. In what is perhaps the most well-known set of studies in the history of psychology, Stanley Milgram (1963) demonstrated that research participants will administer increasingly strong and potentially harmful electrical shocks to another individual when ordered to do so by an authority figure.

Milgram and others interpreted his robust and dramatic results as shedding significant light on the Holocaust by showing how ordinary individuals come to commit seemingly unthinkable and cruel acts (Milgram, 1964). Milgram's work, however, became the target of much criticism.

A significant portion of this criticism focused on how relevant the findings really were to understanding something as complicated as the actions of perpetrators in the Holocaust. Some suggested that the participants' obedience towards the experimenter resulted from the trust they placed in science and the academy.

PROBLEMS OF THEORY AND APPROACH

As the crisis wore on, many authors began to argue that problems of method and relevance were simply symptoms of a set of much larger and far more substantive issues, including the theoretical approach of the field, the disciplinary orientation, and, according to

some, the inadequacy of the entire philosophy on which social psychology had been founded.

Some discussions of theoretical orientation were focused on the simplicity of social-psychological theory. It was believed that social psychology had become too consumed with theories built on small, repeatable effects, resulting in theories with a very limited scope.

This focus had resulted in a lack of integrative theories that could unite social-psychological findings and capture the complexity of social individuals in complex social systems (Back, 1963; McGuire, 1969, 1976; Pepitone, 1976).

Social psychologists were therefore left with what one author described as "miniature theories" (Back, 1963) and "simple a-affects-b" hypotheses (McGuire, 1976). The most prominent theories—cognitive dissonance theory, the risky shift paradigm, and social learning theory—were considered by many to be isolated from one another, exploring small corners of social cognition, emotion, and behavior without any linkage to other theories or experimental findings. Others argued that the field's theoretical problems stemmed from the individualistic and reductionist approach of social psychologists.

It was held that social-psychological studies and theories—focused on individual motivation, interpersonal processes, and social cognition—had failed to account for the role of macrosocial phenomena such as social structure, class, political systems, and culture (Back, 1963; Backman, 1980; Pepitone, 1976; Sherif, 1977; Smith, 1978). Pepitone (1976), for example, identified the cause of the crisis as a "misplaced theoretical unit of analysis" (p. 641). He argued that social psychologists automatically attribute research findings to individual motivation and psychological processes without considering the normative social world on a larger scale as a possible determinant of individual behavior.

As an example, Pepitone referred to the often observed phenomenon where the perceived payoff of a goal increases as the suffering required to obtain it also increases. Dissonance theorists would attribute the finding to an individual's desire to decrease discomfort caused by sustaining two

inconsistent cognitions. Pepitone argued that the finding may just as well be the result of shared cultural norms revealed by adages such as “no pain, no gain”.

The debate regarding the relative roles of macro- and microsocial phenomena in social psychology was also reflected in ongoing discussions about the relationship, or lack thereof, between psychological and sociological forms of social psychology (Archibald, 1976; Boutilier, Roed, & Svendsen, 1980; House, 1977; Moscovici, 1972; Stryker, 1977). By 1960, social psychology was primarily a subdiscipline of general psychology; that is, it was practiced primarily by psychologists, in psychology departments, following the principles and methods of general psychology (Collier et al., 1991).

Its focus was, for the most part, on individual cognition, emotion, and behavior in relation to various social stimuli, such as the presence of another individual, the judgments of group members, or the presentation of a persuasive message (Farr, 1996; Greenwood, 2004).

Despite the dominance of such psychological forms of social psychology, sociologists had also maintained traditions of social psychology within their own discipline. Sociological variants of social psychology frequently used non-experimental, observational studies to examine face-to-face interactions between individuals, as was the case for symbolic interactionists who examined the meaning created in these interactions (House, 1977).

Sociological social psychologists also employed survey methods to examine the relationships between psychological processes and attributes, such as personality or self-image, and macrosocial phenomena, such as social class and race (House, 1977).

DIAGNOSING DISCIPLINARY CRISIS

The 1970s crisis in American social psychology provides an interesting case study of a discipline in the midst of a self-diagnosed crisis and raises interesting questions regarding how and why such crises are diagnosed. During and after the crisis, some scholars suggested that the issues raised in the context of the crisis were not new issues at all:

They noted that the controversies of the crisis were in fact the same philosophical problems that had plagued the social sciences since their inception, including issues of determinism, mechanistic causality, individualism versus holism, and nomothetic versus idiographic approaches (Rosnow, 1983; Shaw, 1974). This evaluation is supported by Fay Berger Karpf's (1932) monograph reviewing the field. Karpf noted that two of the central problems in the newly developing field were controversies over how psychologically or sociologically-oriented the field should be and what methods would be most appropriate for the field (Karpf, 1932).

Similarly, as early in 1933, Saul Rosenzweig had outlined the social-psychological aspects of the subject-experimenter relationship and noted that it was already “a well-known fact that experimentation in human psychology presents serious difficulties” (Rosenzweig, 1933, p. 337).

Contemporary scholarship on the history of social psychology likewise demonstrates that many of the same issues that were debated during the crisis had been contentious ones throughout the discipline's history.

The Progress of the Indigenization of Psychology in India in 1980s A Review Sinha (1994) claimed that “indigenization is a global phenomenon” (p. 180), i.e., it is a necessity in all countries and across all disciplines. In India, there have been repeated, aperiodic calls for indigenization of psychology following the initial call of Durganand Sinha (1973) to make psychology relevant to the Indian context and to serve the needs of the Indian people. In the past decade much has been written about the

state of, type of, extent of, sources of indigenization of psychology in India, and of the positive and negative factors influencing its progress. The writings of Adair, Puhan, and Vohra (1993), Dalal (1996), D. Sinha (1994), and J.B.P. Sinha (2000) among others have each concluded that indigenization in India is slowly but steadily progressing.

Taking their reality into account, Indian psychologists have imported the concept and suited it to serve the purpose of indigenization process. J. B. P. Sinha (2000) has argued that given the pluralistic nature of the Indian society and its people, the openness to diversity among Indians, and the relative comfort with dissonance of an Indian scholar, no single route is best for the growth of psychology in India; rather a number of approaches to making psychology relevant will not only help but also ensure the survival of the indigenization movement.

Three routes have been identified as possibilities for Indian psychology to travel to make research in psychology more relevant. The first and commonly accepted route is the use of Indian traditional knowledge, categories, and theories to explain basic psychological phenomena such as motivation and personality.

However, indigenization in India has not been limited to the development of a cultural psychology or of unique principles heavily based on language, as has been the case in the Philippines, Taiwan, and Mexico. Ethnic or cultural psychology has been recognized as a source for an indigenous psychology in India, but it is only treated as one of several routes that indigenization may take and is the least popular route.

A prime reason for India not following the culture-based route to indigenization is the difficulty in defining or agreeing upon what would be appropriately culturally derived in India. The difficulty arises from the size, diversity, and complexity of the populace in India. There are large differences in the languages spoken, religions practiced, caste, and tribal affiliations of people. There are six religions that are actively practiced in India, of which there are two dominant religions (according to the 1991 Census 82.41 percent are Hindus and 11.67 percent are Muslims), and eighteen languages are officially recognized, each with a distinct script and literature. In the 1991 Census the number of people who spoke any one language ranged from 39.85 (Hindi) to .01 (Sanskrit). Approximately 10 percent of the Indian population is tribal. Most of these groups live in remote parts of the country and many of their ways of organizing their world are primitive.

Thus it is difficult to agree on the topics that would be classed as topics of national importance or be culturally appropriate. Would psychologies based on ancient Hindu texts (it would not apply to more than 15 percent of the population) be more culturally appropriate than those based on Muslim texts (it would apply to a smaller but a significant percentage)? Which Hindu text would classify as national and cultural is another dilemma, given that Hinduism itself has more than eighteen ancient books of philosophy and teachings and there is no widespread agreement on which one of them is the key text. Also, if psychologies based on Muslim texts were indigenous would they be different from the psychologies of Islamic nations such as Sultanate of Oman or Iraq. The diversity indicates that rather than having one national/indigenous psychology it is more appropriate to envisage that there would be multiple indigenous psychologies.

Thus the route of cultural psychology as practiced in Mexico or Philippines cannot be the only route for indigenization in psychology and it is often the least popular route in India.

This is also because majority of the urban psychologists and psychology students do not identify with the "cultural" ways and means (Dalal, 1996).

THE PRESENT STUDY

This chapter reports on the extent of cultural/socially-relevant research by each route based on the abstracts published in the Indian Psychological Abstracts and Reviews from 1998 to 2002 (Volume 1).

Each year two issues of this journal were published thus nine issues were included in this study. The journal divides the published abstracts into specializations: Cognitive, Personality, Cross-Cultural and Indigenous Psychology, Life Span and Developmental Psychology, Women and Family Studies, Educational Psychology, Organization Behavior and Industrial Psychology, Social psychology, Clinical Psychology, Research Methods and Psychometrics, Experimental Psychology, Physiological Psychology, and General Psychology.

The abstracts for experimental and physiological psychology and research methods and psychometrics were not included in this study. For each of the other sections abstracts were rated by the author on whether the article was theoretical or empirical, and if empirical, whether it fell under any of the three categories of socially/culturally relevant research:

Research that was cultural in nature, being based on indigenous conceptualization or theory. This included, for example, the work on the role of outcome orientation vs. process orientation on motivation and stress derived from the Bhagwad Gita, an ancient Hindu text; the giving theory of motivation derived from the ancient Vedas, and the role of practicing yoga and meditation in developing the self and its relation to the workplace.

- (a) Socially relevant research that was undertaken on country-specific topics such as crowding or population explosion, epidemiological surveys of, for example, the incidence of violence towards women in a certain region, or substance abuse among college students. This category also included research on HIV/AIDS and on caste, and
- (b) Western concepts and theories that were tested and their findings were compared to those obtained in Indian settings. For example, the work on learned helplessness, its application, or validity tested within Indian samples, the use of Somatic Inkblot Series for diagnosing schizophrenia or other mental illnesses presented by Indian patients; Piagetian conservation among Indian children; or studies on procedural and distributive justice.

QUANTITATIVE RATINGS OF INDIGENOUS RESEARCH DEVELOPMENTS

A total of 2,531 articles were included in this study of which 636 were theoretical, with the rest (n=1895) or 75.6 percent of the total articles being empirical. The largest proportions of empirical articles were in the clinical psychology section (21.3 percent) followed by social psychology (15.6 percent) and organizational behavior and industrial psychology (15.1 percent).

Table 1 presents the number and percentage of empirical articles that were rated as being socially or culturally relevant under each route. Overall, approximately one quarter of the articles in the last five years were rated as being culturally/socially relevant using one of the three routes. There were also variations in the extent to which a particular route was used. The largest volume of research was in the category of socially relevant topics.

The largest percentage of abstracts was in the study of socially relevant topics (the second route) in the section on women and family studies (50%) followed by those in the section on social

psychology (35%). In sections of clinical, women and family studies and cognitive psychology there were no studies that could be classified as based on the cultural or ethnic route. The largest percentage of studies using the third route, that is testing western concepts in Indian settings, were in the section on industrial and organizational psychology.

For example, there are studies that use western scales to measure commitment among different groups of employees (for example, working in private and public sector corporations) or that measure stress of various occupational groups, or the correlates of the Big 5 personality traits with job satisfaction among school teachers.

CONCLUSIONS

From the above observations and data generated by examining the research trends in published research in India, it is possible to conclude that there is a visible trend toward making the practice and research of psychology more relevant to the Indian context. In fact, as pointed out by J. 13. P. Sinha (1993), though the bulk of psychology research in India continues to be replicative a small but significant portion of it is relevant to the Indian context. This study finds that the small portion is now grown to a quarter of the total research produced.

The foregoing has provided few examples of the range of indigenous developments within Indian psychology. The review is not exhaustive because of space limitations. However, it would not be wrong to say that India has responded more uniquely to the definition of indigenization (D. Sinha, 1996).

Durganand Sinha (1973) championed the goal of an Indian psychology that would be relevant to Indian society. His concern was that psychologists were more focused on the psychology of the west rather than being as attentive as they should have been to the context and issues within their own society. It may not have occurred in his lifetime, but there is evidence in the recent research pursued by Indian psychologists that a strong recognition and incorporation of the Indian context has developed in their selection of topics and research activities.

1990S: PARADIGMATIC CONCERNS

Mind and consciousness are the most fascinating and wonderful phenomena in the universe. It has fascinated man throughout history. Questions about mind, self and consciousness have been raised not only by psychologists and philosophers but also by thinkers from diverse fields e.g. Physics, Biology, and Neuroscience. Their work within their own disciplines inevitably brought the urgency to look into the place of mind and consciousness in the entire scheme of creation. Several writings by great thinkers like Shroedinger, Sherrington, Penfield, J Eccles, Kothari, etc. eloquently testify it.

Questions about mind, self and consciousness were at the heart of Indian psychology which we find shrouded in the religio- philosophical traditions of India dating back to more than two thousand years. However it remained largely unrecognized and unappreciated in mainstream psychology both in India and other parts of the world. There is only an occasional reference to Indian psychology. According to Hall & Lindzey "One of the richest sources of well formulated psychologies are Eastern religions... Most major Asian religions have at their core a psychology little known to the masses of adherents to the faith, but quite familiar to the appropriate professionals, be they yogis, monks or priests"

Why these rich and profound knowledge systems about the inner world have largely remained unrecognized by mainstream psychology? Why there is a resistance in psychologists both in India and foreign lands to even acquaint themselves with Indian psychology to examine its value. Both these questions need to be examined if psychology is to really evolve and get enriched by the insights of Indian Psychology

There are three reasons for Indian Psychology remaining unknown to mainstream Psychology:

1. Insights about the inner world were a part of the religio-philosophical traditions of India which have profound knowledge systems as their foundation. However, the foundational knowledge systems were very complex and due to the metaphysical or spiritual nature of its subject matter it was inaccessible to masses unless they had the necessary inclinations for it. Moreover, it required deeply questioning mind, introspective nature and existential orientation. Traditionally it was imparted by the teacher to only those who were prepared enough to fathom its depths. Thus, the knowledge systems remained confined to limited number of scholars and sages. However, it is important to note that the vision which emanated from it had widely influenced the Indian culture. One is in awe of the mighty foresights and understanding of the sages and seers of this country who found ingenious methods to communicate such a profound knowledge and wisdom to common man. Indian culture, its festivals, folk traditions, mythology, art, music, religious practices, rites and rituals of the community are testimony to it. Psychology adopted the paradigm of physical sciences including its methods. The antithesis between science and religion, as witnessed by last two centuries, have made the followers of science including psychologists sceptical of religio-philosophical systems of knowledge. Though hard core science like Physics has revolutionized its world view but other disciplines including psychology has remained unaffected by such changes. The thinkers in the field of Psychology have been feeling a sense of dissatisfaction at its limited view of man and it is being increasingly realized that its paradigm is of limited value to its subject matter and its ultimate goals. It has not yet found revolutionary ideas and insights as in Physics to break the limits of its horizon.
2. The writings of Indian Psychology are largely inaccessible in a format familiar to psychologists. It is shrouded in religio-philosophical traditions of India which is ignored by modern day scholars who are steeped into scientism. It is considered by large majority of us as unscientific and religious orthodoxy and therefore no effort is made to acquaint oneself and examine the rich literature that exists in these traditions.

THE PROBLEMS OF SCIENTISM IN PSYCHOLOGY

Following the model of scientific method, Psychology presumed that it can identify all the factors/causes that influence man's mind and behaviour. Vast number of empirical studies have been done investigating every possible factor that may influence and shape personality and behaviour. However, it has often confirmed at best the common sense knowledge which did not sharpen the skills for prediction and control – the ultimate goal of science. It has not given us tools to bring desirable changes in one-self. Though insights emerging from Clinical Psychology have made valuable contribution in understanding the inner workings of mind and personality at conscious, subconscious and unconscious levels but it has failed to guide and even define what could be the possibilities of human perfection.

Looking at the contributions of mainstream Psychology one can broadly put it in two categories: (a) mind as an instrument of cognition (b) understanding the forces that shape our personality and

behaviour. It has quite ingeniously applied experimental method to study the cognitive functions of the mind and gathered important insights about the cognitive processes of the mind. However the experimental method was found to be inappropriate for the latter category of issues. The whole approach of using objective methods and studying others to collect relevant data has at best approximated common sense wisdom. It is these issues where mainstream Psychology can immensely benefit from the Indian Psychology. However, the challenge before us is to present the insights of Indian psychology in a form that can be understood by the people working in the field of psychology. It is by no means an easy task and needs open dialogue that is free from all other compulsions.

INDIAN PSYCHOLOGY

Mainstream Psychology has its origin in the western cultures. It is interesting to note that thinkers of the west made great strides in knowing and understanding the mysteries of the outer world whereas the thinkers in India pursued with great passion the inquiry into the mysteries of the inner world.

Insights about the inner workings of mind forms a central core of Indian psychology. It has the potential of revolutionizing our understanding of man in the same way as Modern Physics did to our understanding of the universe.

The questions around which Indian Psychology is woven, may be broadly formulated as follows:

- What is the nature of I/self? What is its relation to the entire creation, i.e. Universe?
- What is birth and death of "me"? How "I" begin and end?
- How can one free oneself from the vicissitudes of life and its sufferings called 'samsara'?
- How to choose amongst multiple options that life presents to each one of us. In Bhagvad-Gita the dialogue between Arjuna and Krishna starts with this issue;
- How to live at peace with oneself, others and the larger world including insentient and sentient beings?

In brief we can sum up the above questions as "what is the nature of "I"/self (called Atman) viz a viz the nature of phenomenal world" and "how do we maximize ours as well as others well being.

Such questions in Indian psychology led to deep analysis of mind, problems of identity and complexities of human life. The deliberation on these issues resulted into insights and vision which encompassed not only man and his life but the whole creation. This was a holistic picture which saw connectivities operating in the entire creation/nature. It had the potential of transforming man's life in a manner which is the ideal of every human being, variously termed as "sthitpragya" or "Samat-vayoga" (unshakeable mental equilibrium).

Inquiry into the nature of "I" or "Self" resulted into two different streams of thought in Western & Indian cultures. Western psychology has viewed self as a unifying force within, which is all the time dynamically absorbing the experiences and at the same time determining the behaviour and quality of experience. It is constantly getting shaped and reshaped by the interactive forces of biochemistry, environment and its own unique way of perceiving itself and its circumstances. Different personality theories represent various perspectives to explain the shaping of self or personality.

With the exception of Sir C.G. Jung, these theories have not clearly differentiated between self and personality.

Insights into the nature of self in Indian psychology revealed the witnessing nature of "I" called Atman. Upanishads say that Atman or Brahman alone is the fundamental reality whose nature is pure awareness. This is the substratum of the whole creation including mind. Mind is called Antahkaran, i.e. instrument of knowledge of inner world. It consists of four-fold constituents:

- Manas: Perceptions, feelings, desires, thoughts
- Buddhi: intellect which is the faculty of discrimination and choice.
- Chitt: Memory

Ahankar: Ego, Sense of individuality or Dehatma-buddh

Manas is by nature extremely unsteady. It can be disciplined by intellect whose capacity of choice and discrimination can be enhanced by introspection, knowledge and education. Ahankar (ego) or Dehatma-buddhi is a case of misplaced identity which is the root cause of ignorance about the real nature of Self leading to sufferings in life. The relationship amongst self, mind, intellect and ego is beautifully brought out in the following sloka of Kathopanishad:

*Atmanam rathinam vidhi shariram rathmev tu Buddhi tu sarathim vidhi manah pragrhavev cha!
Know the Self/soul as the rider, the body as the chariot, the intellect as the charioteer, and the mind as the reins; the organs are the horses and the sense objects the roads; the soul with the body, organs and mind is designated by the sages as the relisher of experience.*

How do we comprehend the nature of Self which appears to be highly abstract to common sense view of ourselves that identifies self with body and mind. Upanishads carry a very comprehensive analysis to reveal the nature of Self:

- subject-object analysis: common notions of self are critically examined to show the problems in our thinking and conclusions,
- analysis of waking, dream & sleep: the analysis of three states of man's being is done to show that our notions about self are based on partial view of our states of being i.e 'waking state' while completely neglecting dream and sleep states.

SUBJECT-OBJECT ANALYSIS.

"I" or "Self" is intimately experienced as the subject or knower of everything external as well as internal world. All modifications of mind e.g. perceptions, thoughts and emotions are only objects

o knowledge and not the subject. In the words of Sri Radhakrishnan "the body, the sense organs, the mind and the ego all lay claim to being the self of man. Before enquiry man takes one or other of them as self. But philosophical enquiry reveals their non-self character, it reveals each one of them as an object and not a subject."

Who is the subject then? To know the subject / knower means to objectify it and necessitating yet another knower leading to regress ad infinitum. Yet all forms of knowledge necessitate the existence of knower. Upanishads call this subject / knower as "Atman" whose nature is pure consciousness.

After showing the dissimilarity between knower (self) and known (mind) it analyzes the relationship between the two. The knower and the known are the two apparent aspects of one basic reality.

Known is not independent of knower because its existence depends on the knower. Just as pot's existence is not independent of the clay; pot is only name and form of the same basic substance, i.e. clay. Similarly known is not an independent reality, known and knower are one only. Thus the whole world, inner and outer, is resolved in one alone; Upanishads call it "atman", the resolving point of knower and known whose nature is pure consciousness. Atman = Brahman is the most profound statement of the Upanishads indicated by the following Mahavakyas:

- aham brhamasmi (I am brhaman)
- tat tvamasi (that thou art)
- ayam atma brhama (this atman is brhaman)
- sarvam idam khalu brhaman (all this is brhaman)

What is the nature of atman? What is brhaman? What kind of equation the above statements are talking about? To understand the meaning of atman and brhaman one needs to know their etymological roots

- Atman – that which pervades everything
- Brhaman – derived from the root "brh" meaning "to grow" or "to increase"; when noun is formed from "brh" it means bigness, unconditioned by any form, space or time.

These statements may look utterly confusing to one who is not familiar with Indian Psychology, Comprehension of these Mahavakya require formidable shifts in one's thinking and conclusions that man makes universally about himself and the world, namely

- I am the body and the mind (Dehatma Buddhi)
- The unquestionable reality of the physical world

It is the burden of these conclusions which is the biggest barrier in comprehending the vision of Indian Psychology. The paradox of man is that he can deny his own self through a wrong self-image. Thus Atman which appears to be conditioned by body and mind (known by us as "I") is in fact limitless. Just as space confined by room is same as space all over, similarly Atman which appears to be confined (identified) by body and mind is in fact without any confines, therefore, called Brhaman. It is in this sense that Atman is called the real self which is Brhaman. Its nature is defined as "Sat" (truth), "Chit" (consciousness), Anandam (ever blissful).

- Sat – Truth or reality. Truth is defined as that which can not be negated.
- Chit – Consciousness. It is not contingent quality which rises or sinks with the presence or absence of objects. It is "svatahasiddham" i.e. it is self-evident; no other proof is required to prove its existence. Just as one light does not require another light to prove its existence. This self-revealing consciousness is not an adventitious quality of the self, it is the very being of the self, i.e. self is identical with consciousness. Its very nature is knowledge 'Pragya'
- Anandam – bliss, devoid of any impurities, inadequacies, everfullness.

Thus reality is one alone, it is non-dual. It pervades every thing sentient or insentient. Isopanisad eloquently said: "Ishawasyamidamsarvam yatkinch jagatyam jagat" (everything is pervaded by brhaman alone).

Analysis of knower and known has already revealed the error of locating "I/self in body and mind as

both belong to the realm of “known” (objects of knowledge) and not the “knower”. It was also seen that knower can not become the object of knowledge as in itself it is a self-contradiction. Finally the logical necessity of tracing the known to knower resulted into the two being one alone, i.e.

Atman or Brhaman, whose nature is pure consciousness. There cannot be anything away or beyond consciousness, not knowing is also within knowledge. Every phenomena of the world including space and time is within consciousness, in that sense Atman is neither born nor dies.

How do we reconcile this vision with the phenomenal experience of everyday world. We need to remember that Truth can be altogether different from the appearances. In fact if we examine carefully we would find that knowledge always contradicts commonsense notions. Just as the earth appears stationary and sun seems to travel from east to west, which is only an apparent reality (called “Vyavaharik Satya”). Its falsity is revealed by the knowledge that it is earth which is rotating on its axis, causing the shifts in the position of the sun. This is called Paramarthic Satya or absolute reality. Thus in the light of Paramarthic Satya, the falsity of appearance (Vyavaharik satya) is revealed.

ANALYSIS OF THREE STATES – WAKING, DREAM AND SLEEP

Mandukya Upanishad analyzes the three states- waking, dream and sleep and shows the necessity of a common substratum which gives continuity to “I” experience. We spend our whole life alternating amongst these three states yet when it comes to defining our identity, we exclusively take into account waking state alone.

The conclusion that “I am body and mind” is essentially arising during the waking state. When we examine dream and sleep states this identity gets questioned. Logically there should not be any experience or knowledge without experiencer or knower; then who is this knower without body-mind identity (“I” sense of waking state). Similarly in sleep, there is no experience of anything yet experience of “sound” sleep is there. We carry on the feeling of having good sleep when we wake-up, in other words the memory of sound sleep persists upon waking up. Logically there can not be memory without experience and an experience without the experiencer is not possible.

Thus the above analysis reveals that the waking identity is only one type of identity and its firmness and persistence gets challenged when the very nature and process of experiencing in dream and sleep states is examined. It puts forth the need to re-examine our firm conclusion about the self only on the basis of waking identity (identity with body and mind) and needs deliberation on the principle which is more inclusive and fundamental. Upanishads call it Atman whose nature is pure awareness. Thus awareness / consciousness whose nature is “self-luminosity” or “knowing” persists through three states of waking, dream and sleep. It is upholder (adhishthanam) of the entire universe of names and forms including space and time.

Shankaracharya, one of the greatest thinkers of the world, said:

“There is some entity, eternal by nature, the basis of the experience of egoism, the witness of the three states of waking dream and sleep and distinct from the five sheaths, who knows everything that happens in the waking, dream and sleep states, who is aware of the presence or absence of the mind and its functions, and who is the basis of the notion of egoism.

In the words of **Jodson Herrick**— Awareness itself has no locus, because the conscious act has

properties that are not definable in terms of the spatial and temporal units which are employed in the measurement of the objects and events of our objective world.”

Great thinkers from diverse disciplines reached the similar vision of truth despite very dissimilar fields of their endeavour. **George Wald**, a noted biologist and noble laureate said “Just the contrary of consciousness first appearing as a late outgrowth of the evolution of life on this and other planets, I come to the view that this universe breeds life and consciousness, because consciousness is its source and because the stuff of this universe is ultimately mind-stuff. What we recognize as the material universe, the universe of space and time and elementary particles and energies, is actually an avatar, the materialization of primal consciousness. In that case there is no waiting for consciousness to arise. It is there always, at the beginning as at the end. What we wait for in the evolution of life is only the culminating avatar, the emergence of self-conscious bodies that can articulate consciousness, that can give it a voice, a culture, literature and art, and Science.”

Professor Kothari pointed out the similarity between visions of reality obtained by Quantum Mechanics and Upanishads:- “The Concept of oneness in Quantum Mechanics is a totally, fundamentally, new concept. We have a most remarkable thought-provoking analogy drawn from modern physics for the great Upanisadic formula; the different individual selves on the empirical plane are one and the same on the transcendental plane”.

In his Nobel address **Delbruck (1969)** said: “Even if we learn to speak about consciousness as an emergent property of nerve sets, even if we learn to understand the processes that lead to abstraction, reasoning and language, still any such development presupposes a notion of truth that is prior to all these efforts and that can not be conceived as an emergent property of it, an emergent property of a biological evolution.

We find a strikingly similar conclusion by **Schroedinger**, great physicist of 20th century, in the epilogue “Determinism and Free Will”. He said “two incontrovertible facts are (a) My body is a machine (b) Its motions are under my control. The only possible inference from these two facts is, I think that I, I in the widest meaning of the word, that is to say, every conscious mind that has ever said or felt “I”, am the person, if any, who controls the “motions of the atoms” according to the laws of nature.... In itself the insight is not new. Earliest records to my knowledge date back some 2,500 years or more. From the early great Upanishads the recognition Atman = Brahman (The personal self, equal the omnipresent, all comprehending eternal self) was in Indian thought considered, far from being blasphemous, to represent the quintessence of deepest insight into the happenings of the world.”

Insights of clinical and personality psychology show us vividly the role that self-image plays in our day to day life. We not only act as unified self but we also hold certain image about it. The entire dynamics of inner life revolves around the positive or negative experiences with regard to the self-image. Self reflection or objectivity entails distancing from our own selves and trying to have a revision of it. It is like enhancing the witnessing character of our selves. Thus comprehending the non-self character of our identities makes it easy to deal with our reactions. Not only this, it also shows us egocentricity in our thinking and actions. Thus in a limited way the development of this self distancing or objectivity itself resolves several problems. Bhagavad Gita analyzes in great length the inner dynamics which plays havoc in our lives and create problems and sufferings. It details the effectiveness of Karma yoga and Gyanyoga as sure ways of emancipating ourselves from the vicissitudes of inner life. More of it would be discussed later.

THE ABOVE DISCUSSION CAN BE SUMMARIZED AS FOLLOWS:

The notion of self in Western Psychology is a case of misplaced identity

- Locating and identifying the self is problematic, if only waking state is taken into account,
- This change in vision requires thorough de-conditioning of mind also called "Antahkaran-sudhi". The process of Inner purification requires an introspective analysis of our thinking, feeling and reactions. This gradually shows us how our own thinking and ways of dealing with life situations are often instrumental in creating more problems and sufferings for ourselves.

WESTERN & INDIAN PSYCHOLOGY

How the above discussion is relevant to Psychology. For comprehending its relevance we need to take a re-look at the goal of psychology. The ultimate goal of psychology is to reveal the mysteries of the inner world. Therein lies the hope of solving man's problems and maximizing his effectiveness. Indian and Western psychology do not differ in terms of the goals. However the difference lies in the approach and the paradigm within which they operate.

The developments in Physics showed that the order of nature is different in large and small objects. At macro level the nature works within a deterministic design with laws that can help in precise prediction and control. However, at micro-level the whole order of nature's working undergoes change. "Contrary to Newtonian Physics, Quantum mechanics tells us that our knowledge of what governs the events at sub-atomic level is not nearly what we assumed it would be. It tells us that we can not predict sub-atomic phenomena with any certainty. We only can predict their probabilities" Gary Zukav (1979).

According to modern physics, Nature at micro-level defies precision in prediction and control, the hallmark of classical Physics. Not only this, it questions the independence of observer and observed as the very nature of observed gets altered by the act of observation.

"Philosophically, however, the implications of Quantum mechanics are psychedelic. Not only do we influence our reality, but, in some degree, we actually create it" Gary Zukav (1979). It shows striking similarity with the phenomena of the inner world.

Mind and phenomena of inner world obviously belongs to the micro world subtler than atoms and its constituent electrons and protons etc. Taking the lead from Modern Physics, mind can not be understood through exploration of deterministic laws and therefore it needs a paradigm shift within which it is currently operating.

Search for truth cannot set limits to itself; it has to exhaust all possible ways of explorations. It requires unbiased examination of facts as they are and constant reformulations of our worldview till our questions and doubts are answered to our satisfaction.

The dissatisfactions from the state of contemporary psychology are mounting and efforts towards the search for "meaningful psychology" are increasing appreciably. Bruner (1990) says: "the wider intellectual community comes increasingly to ignore our journals, which seems to outsiders principally to contain intellectually unsituated little studies, each a response to a handful of like little studies. Inside psychology, there is a worried restlessness about the state of our discipline, and the beginnings of a new search for means of reformulating it."

There is a long road between notions of man in Western and Indian Psychology. Scientism in

mainstream Psychology has piled up a heavy, layered and deeply entrenched views about man and his/her inner world. Opening of new horizons is an arduous task This is a ripe state for taking a new plunge. Indian psychology promises to offer further breakthrough in understanding man's inner world.

Comprehending Indian psychology is not easy. It is not like noticing a fact, but far more like achieving a great possibility through a strenuous effort. Mere knowing is not sufficient to grasp the view

o Indian psychology. The long journey of inner purification is important to comprehend its deliberations. Inner purification demands freedom from conditioned ways of thinking. It requires introspective orientation, critical self examination and willingness for change.

Existential questioning becomes pre-requisite condition to even begin this inward journey. A mind that is free from conditionings becomes the master of itself. It slowly attains freedom from all enslaving tendencies. Such a state of mind is called sthithpragya, the highest perfection of man, a man of self-realisation. It is called Moksha. Moksha is the highest goal of life. Knowledge leads to liberation (sa vidya va vimuktaye) is a very profound statement of the Upanisads. Dehatmabudhi, a case of misplaced identity, is the root cause of all notions and complexes which keep creating problems and sufferings for us.

NEED FOR A SHIFT IN PARADIGM

Paradigm within which mainstream psychology operates is, that, man is a creation in the Universe. Just as everything in nature is governed by the laws of nature similarly our body and mind are also governed by universal laws. Science offers the best methodology to study such laws of Nature, therefore, mind would also reveal its secrets when studied by scientific methods. New paradigm emerging from Indian psychology is that pure consciousness alone is the fundamental reality. The entire universe including body, mind and senses is only a manifestation of this reality and belongs to the same category as the material world. Man's identity does not lie in body and mind but in Atman. Misplaced identity is the root cause of all our problems and sufferings. There can never be an end to man's search for happiness and meaning till he discovers his own essential nature i.e. pure consciousness qualified as Sat + Chit + Anandam. Pure consciousness is the most fundamental reality and the ultimate truth of all creation, manifest or unmanifest. Different schools of Indian Thought are unanimous in saying that the true nature of man and its identity lies in Consciousness and not in body and mind, though they have adopted different methods for articulating it.

Mind and body are also creations in nature and follow orderly functions. Analysis of life situations, its impact on oneself and others can give a clue to understand its order of functioning. Indian Psychology stresses self-inspection and self-experimentation to achieve self-mastery and perfection. It exhorts discipline of oneself and not of others. Wisdom is acquired by introspection, reflection and experimentation with one's own self in the light of spiritual knowledge (Atmagyan). It has redefined the goal of life from pursuit of happiness to freedom (Moksha) revealing fantastic understanding of the order of the inner world.

As earlier discussed Psychology faces twofold challenges – understanding cognitive processes and maximizing effective living. It is already collaborating with neuroscience to unravel the mystery of human cognition. However it needs to open up to Indian Psychology for broadening its horizons for the latter. Psychology can not be value neutral in this regard as it can not shy away from the fact that human beings are inherently beset with the dilemma of making choices in life and it needs firm ground for doing it.

DISCIPLINARY IDENTITY CRISIS

One of the more familiar ways of reviewing the state of any discipline in academic research is by gauging the quality of literature that circulates in its academic journals and books.

Publications in the ordinary parlance are like academic currencies which decide the fate of academicians by rating their performance. However publication rate may not always be desirable or wisest of procedures to ascertain disciplinary development, but it continues to be the most commonly used yardstick of progress (for details on the previous ICSSR Indian psychology reviews, see Pandey, 2004: 342-370)

There are then some other mediums of reviewing the state, progress, and chief concerns of a discipline that entail conducting surveys with practitioners and researchers from the concerned discipline, inviting experts or wise-men/women for reflections and critical appraisal.

Besides undertaking process-outcome analysis, meta-analysis of research findings, models or theories based on leading concepts and appraisals of goals set, achieved and other similar mechanics, are commonly employed to map and 'measure' the growth of a discipline.

Reading psychological literature in the popular Indian psychological journals does not make a pleasant or tremendously illuminating reading most of the times. I have identified some reasons behind the uncreative, repetitive appearance of the literature which at times seems to lack sound or engaging methodology and at other instances seem to present findings built on rather flawed arguments and methodology.

Most of the published literature can be classified into two broad categories: *mainstream-validated research* and *oppositional-indigenous research (or reactionary and nativist, as Crooks (1994:180) defines the second category)*.

In the first category are researches which attempt to replicate or validate popular Western theories and researches without much emphasis or rigour shown in picking up context-relevant methodology or clear theoretical-ideological considerations which guide their research questions in the first instance. There are instances of numerous inchoate researches found in abundance in Indian psychological journals, in projects and theses supervised in varied departments at both undergraduate and postgraduate levels the decay in the quality of research in the country is at once displayed in the rigmarole of regional conferences and the thematics chosen in such forums.

Indian mainstream researches focus on domains of social, cognitive, developmental and experimental psychology (in other words specialities that can cover the entire rubric of psychology otherwise!) where such lacunae (i.e. gaps between theory and methodology) can easily be spotted.

NEW AND INNOVATIVE SPACES

More original, socially relevant and astute researches in the country range from critical reflections and serious interrogations in areas of cultural psychology (Misra & Gergen, 1993), indigenous social psychology (Sinha, D. 1986; 1997; Sinha, J., 1984), cultural psychoanalysis (Kakar, 1989, 1995) and the consequent development of social sciences hermeneutic.

WHAT IS 2000S: EMERGENCE OF INDIAN PSYCHOLOGY IN ACADEMIA.

ISSUES: THE COLONIAL ENCOUNTER; POST COLONIALISM AND PSYCHOLOGY; LACK OF DISTINCT DISCIPLINARY IDENTITY ?

2000S: EMERGENCE OF INDIAN PSYCHOLOGY IN ACADEMIA. ISSUES:THE COLONIAL ENCOUNTER; POST COLONIALISM AND PSYCHOLOGY; LACK OF DISTINCT DISCIPLINARY IDENTITY

2000s: Emergence of Indian psychology in academi

Indian psychology is a twentieth-century phenomenon, though its roots go back to the Vedic period of the Indian sub-continent in Asia (originally known as Bharata), the exact date of which is still under debate. According to current historical reckoning, the Vedic period dates from about 3000 bce, although some Western scholars date it back to 10,000 bce, based on recent excavations in the site of the Indus Valley Civilization.

Though psychology, unlike astronomy, medicine, economics, law and polity, or literature, was not recognized as an independent branch of study in ancient India, there has been no dearth of psychological theorizing scattered in varied sources, including mythology and epics, literary texts, linguistics, texts on dramatics, sexology, medicine, philosophy, religion, and spirituality.

Concepts and models related to almost all aspects of human behavior, such as cognition, affect, and conation, can be found in these sources, especially those human potentials which are yet to find their way into mainstream psychology, such as intuition, paranormal phenomena, altered states of consciousness, and transcendent awareness or pure consciousness.

These topics are found not only in texts and treatises related to Vedic tradition but also in non-Vedic traditions such as Jainism and Buddhism. Yet no efforts at collecting and systematizing a vast body of psychological knowledge are evident until the beginning of the twentieth century.

The term Indian psychology was purportedly first used by Sri Aurobindo, well-known Yogi and freedom fighter of modern India, in 1910 in one of his writings on education. Perhaps the first published work on this subject is by Jadunath Sinha (1933), titled *Indian Psychology: Cognition*.

It is a work of extraordinary scope that brings together all the extant views on various cognitive processes, including intuition and extra sensory perception, available in the three major religious-spiritual traditions of India, namely Hinduism, Jainism, and Buddhism.

SINHA LATER PUBLISHED TWO ADDITIONAL VOLUMES:

Indian Psychology: Emotion and Will (1961) and *Indian Psychology: Epistemology of Perception* (1969). Together, these three volumes are a veritable gold mine of psychological concepts and perspectives. Other early contributions include those by Caroline Rhys Davids, who published *Buddhist Psychology* in 1914 and another volume, *The Birth of Indian Psychology and Its Development in Buddhism*, in 1936.

Other publications compared modern psychology and Indian psychological thought, including *Western Psychotherapy and Hindu Sadhana* by Hans Jacobs (1961) and *Yoga and Western Psychology: A Comparison*, by Geraldine Coster (1934).

Subsequently, Indians also authored additional books, most notably among them *Hindu Psychology*:

Its Meaning for the West (1948) and Mental Health and Hindu Psychology (1952) by Swami Akhilananda.

Although these initial attempts stimulated other traditional Indian scholars, their work was repudiated by academic psychologists of modern India who were trained in empirical traditions of mainstream psychology. Thus, early attempts at development of psychological thought of Indian origin fell into disrepute.

Contemporary Developments In the past two decades there has been a renewed interest in examining the vast psychological knowledge base available in different Indian traditions. This renewal of interest has been triggered by the influx of yoga and meditation practices to the West, studies of altered state phenomena, and growing recognition that concepts and theories of modern Western psychology often do not generalize to Asian cultures.

Some contemporary developments which are not completely in the mainstream, but address vital issues concerning human behavior, such as transpersonal psychology, humanistic psychology, positive psychology, energy psychology, women's spirituality, and holistic approaches to health, have found Indian psychology valuable because its concepts and theories account for many phenomena in which they are interested.

Thus, Indian psychology transcends the geographical boundaries of India in its relevance and usefulness to the understanding of human behavior. **Distinctive Features** Distinct aspects of Indian intellectual traditions provide perspectives for the term Indian psychology :

- 1) The traditions of India recognize consciousness, as distinct from psyche and soma, as a transcendental phenomenon serving as the ground state for the manifestation of all the other states, including waking (jaagrata), dream (swapna), and deep sleep (sushupti). This consciousness is termed turiya (in Sanskrit turiya means fourth). It is called fourth because it has no attributes and does not have characteristics of the other three, and yet supports them. All are altered states of mind.
- 2) Unlike the Cartesian mind-body split, Indian traditions view mind and matter as a continuum.
- 3) Mind-matter is understood to be the operation of three fundamental principles in the universe: sattva , rajas , and tamas , which represent illumination and creativity, energy, and inertia, respectively.
- 4) The person in Indian thought is understood to have three levels: the animal, the human, and the divine.

The divine aspect of the person present in humans is that pure consciousness which is also the foundation of the whole universe. Contemporary developments in physics, biology, chemistry medicine, and psychology are tending toward these ideas and thus vindicate the Indian perspective.

These fundamental views have shaped the Indian ethos and eidos for several thousand years and have provided a framework guiding the lives of millions of Indians. This influence is evident in the fourfold value system enunciated in Indian thought, which recognizes all aspects of human aspiration from the mundane to the spiritual. These aspects are dharma (right living), artha (wealth), kama (desires), and moksha (liberation).

Each person may aspire to all four; yet as a human being one is expected to aspire to self-realization/liberation, which is the ideal human aspiration. All aspects of human activity are conceptualized and understood within this framework of consciousness, which differs qualitatively from the understanding gained only from a waking-state perspective.

Development of Indian Psychology In the past three decades developments within Indian psychology have progressed both in theoretical and empirical directions. Conceptual clarifications, theory building, development of tools, and application of concepts in the fields of education, health, and organizational behavior are some of the major developments (Cornelissen, Misra, & Varma, 2011a, 2011b; Misra & Mohanty, 2000; Paranjpe, 1984, 1998; Rao, Paranjpe, & Dalal, 2008; Salagame, 2011).

Indian psychology is relevant and applicable in all aspects of human endeavor provided one is open enough to understand the underlying worldview. The scope of Indian psychology is from kamasutra to yoga sutra (from sexology to transcendental pursuits) (Salagame, 2011) and no aspect of human life is neglected. A major challenge in the development of Indian psychology has been related to the appropriate methodology to be used. Because many ancient Indian ideas and insights have emerged from transcendental phenomena, Indian psychologists have argued that

third-person methodologies are not appropriate to understand them. Firstperson methodologies are favored.

However, Indian psychology accepts a wide range of methodologies beyond observation, experimentation, and inference. In addition to those mentioned above, Indian psychology also accepts intuition and verbal testimony of an authority as means of valid knowledge.

Therefore, some argue that there is a place for first-, second-, and third-person methodologies, depending upon what one is studying.

The future of Indian psychology lies in its contribution to mainstream psychology as a way of enlarging the existing framework, rather than remaining isolated as a fringe movement. The fact that many non-Indians have been involved in the development of Indian psychology suggests that it will eventually attain universal significance.

THE COLONIAL ENCOUNTER

Are islands natural prisons? The answer to this question is encrypted in the history of modern colonial encounters, that is, the European discovery and characterization of tropical islands and their inhabitants, as the colonial history of the Andamans illustrates. The spatial history of the Andamans began much before their colonization as a leaf in the fantastic tales of ancient and medieval travelers. The Andamans entered history through these accounts and 'transformed into a place, that is, a space with a history'.

The British stepped into the historical trajectory of the Andamans as their empire was shifting away from the Atlantic and starting to focus on the Indian Ocean. With this a new era of 'modern globalization', with linkages between the Indian Ocean and the European-Atlantic economy, was emerging. The events as they unfolded in the Andamans were reminiscent of the Columbian encounters in the late fifteenth century, the sixteenth century colonial encounter between Indians and English in the New World

and the Tupinamba and Europeans in Brazil.¹ The violence in each case accompanied misanthropic characterization of the environments and peoples which the colonizers encountered. British

surveyors and administrators brought colonial experiences and characterizations from European encounters with the non-European world to the Andamans.

This is amply exemplified in the way disgust with the physical surroundings of the tropical islands was projected on to the natives in the Andamans. Over time, the need for physical violence diminished because an essential aspect of this hegemonic imagination was that it created and sustained spaces to which the aborigines had no physical access. Moral judgements were couched in scientific, albeit racialized, theories of environments and peoples.

As a result of being diachronically encoded into the Andamans' history, the colonial characterization of the Islands and their inhabitants displayed a tenacious staying power. This is reflected in the images that have come down to us today of the Andamanese cannibals. The establishment of the penal settlement was instrumental in lending permanence to the image of kalapani, the land of darkness and death, and its nationalist alter ego, muktirth.

At the heart of both metaphors, kalapani and muktirth, sustained and nourished by colonialism and nationalism, was the imagery of the Andamans as a natural prison. There was little endemic or innate in island geography for it to serve as a prison.

However, a particular imagery and perception of nature and landscape influenced the way that space was used, controlled and transformed. This book not only demonstrates this point in relation to the Andamans but has also sought to free the Islands from the 'island complex' and 'island metaphor', which was not always a product of geographical location but of the colonial encounter. It reveals that the island complex was mostly a Euro-centri-

assumption that located islands, especially tropical islands, at the margins and extremities of the civilized and knowable world.

This book, by employing the lens of spatial history, de-links the Andamans from the colonial spatio-geographic imagination, questions the historical conceit in transforming spatial stereotypes into acquired wisdom, and establishes that all prisons are simply human constructs.

decontextualized. More specifically, culturally focused research has been criticized for its tendency to ascribe observed group differences to East– West binaries (e.g., individualism–collectivism, Judeo-Christian versus Confucian, etc.). Moreover, there is little attention paid to the larger historical and contemporary contexts that shape – and reshape – the social lives of these so-called 'traditional' cultural variables such as Confucianism or collectivism. Paranjpe (2002, 35) characterized cross-cultural psychology publications as displaying 'a distinct disdain for history'.

Similarly, Gjerde and Onishi (2000, 216–217) charged that the culture and psychology approach suffers from 'lack of attention to the historical and ideological sources of "culture"'. There are, of course, many historical and ideological forces underlying cultural values and cultural identity; namely, societies elaborate cultural narratives to various ends at particular moments in time.

In particular, the relationship of these cultural elaborations to historical and contemporary legacies of colonialism have received scant attention in psychology, perhaps because most active scholarship on colonialism has taken place outside the disciplinary boundaries of psychology. Because we draw from discussions in colonial and postcolonial studies, which may be unfamiliar to some psychologists, we begin with a brief review of some key-relevant arguments. We then proceed with an examination of the link between colonialism (and postcolonialism) and psychology in two ways. First, we examine various ways in which colonial past continue to matter to the psychological

experiences of individuals in the present, particularly with respect to identity-related struggles and social functioning.

Second, we consider the relevance of colonial legacies to the practice and study of psychology in formerly colonized states. In this vein, we consider the significance and social life of hegemonic Western-centered psychologies in former colonies.

We make note of current efforts in various areas of social and cross-cultural psychology to build a knowledge base of the psychology from the perspectives of the individuals and groups with historical legacies of colonialization, as well as some of the ways in these efforts fall short because of their overreliance on the East– West cultural binaries to frame the indigenizing efforts. We end with a discussion of the challenges that lie ahead.

COLONIAL/POSTCOLONIAL DISCOURSES

Analysis of colonialism and its legacies necessarily calls for attention to its prominent ideological cornerstones: race and ‘culture’. For psychology, it is important to underscore that colonial discourses engage the psychological, taking up questions of the human capacity, pathology, and identity of the colonized.

Colonialism is a specific form of oppression. An increasingly rich literature explores how the colonial subject is made through elaborate systems that measure, compare, and explain human difference; these are the processes that justify that radical imposition of the colonizer on ‘inferior’ people in need of intervention.

Colonial regimes are elaborated discursively by differentiating between the colonizer’s ‘superior’ or ‘more civilized’ ways of life and the colonized people’s allegedly ‘inferior’ or ‘savage’ ways. Scholars look to a wide range of domains to observe this subject-making: from medicine, to city planning, to exhibition, to ethnography, to science, to history writing – and of course to more obvious arenas of social control such as schools and the military (Anderson, 2006; Chakrabarty, 2000; Mitchell, 1991; Young, 1990).

We consider that these colonial legacies are in fact part of a larger transcultural and historical project, namely, East–West distinction-making – and the practice of claiming the unique non-Western aspects of national culture that marks the East Asian modern self, which some scholars have called self-orientalizing practices (Gjerde & Onishi, 2000; Ong, 1999).

Moreover, this project has taken shape as a cultural coproduction between the East and the West (Hay, 1970). For example, anthropologist Aihwa Ong described how – in the post-Mao era – the Chinese state and media began to revive Confucianist ideology as a moral force that can serve to maintain cultural and ethnic continuities between mainland and overseas Chinese and to reign in the Western dangers of economic individualism and cultural excess.

In her work with the Chinese parents (who grew up with the anti-Confucian Maoist rhetoric during China’s Cultural Revolution) and their children born under the one-child policy, anthropologist Vanessa Fong (2004) details the complex and contradictory cultural and national identities of contemporary Chinese adolescents.

From these perspectives, which situate the cultural discourse within the modern historical and political context, the notion of Confucianism or collectivism as ‘cultural’ characteristics of ‘indigenous’

non-Western cultures begins to lose its meaning.

Importantly, these works show that there is more complexity to the discourse of the modern Asian selfhood beyond the idea of a power relationship typified by Western domination and native resistance. Thus, the sense of cultural self throughout the world is necessarily a conversation that is held in relationship to hegemony.

Western ideas/ ideologies: the collectivistic/individualistic distinction is as such best appreciated as one born in interaction.

For example, Liu (1995) showed through her analysis of translingual practice (e.g., translation and introduction of terms such as 'self' and 'individualism' into the Chinese language) that the ideology of individualism in China evolved in the context of China's violent encounters with the West as well as Japan.

In the case of former colonies, then, this matrix is further complicated. In summary, the vocabularies of cultural and psychological selfhood have long histories that intersect power relations, racial regimes, and colonial/imperial discourses. By now, it makes little sense to think of enduring cultural differences unmediated by these processes.

COLONIAL ENCOUNTERS AND IDENTITY

Many sociocultural anthropologists and archaeologists refer to the "colonial entanglement" as a way to emphasize the complexities and ambiguities of power relationships and identities of colonizers and their host communities in colonial encounters (for example, N. Thomas 1991; Dietler 1998). Work by Lightfoot, Deagan, and others has shown that the interregional interaction networks within which colonies are founded bring multiple groups into contact not just colonizers and host communities.

In these encounters, the social identities of colonizers, other foreign communities associated with the colonizers, and host communities can all change. Much, if not most, attention has focused on identity transformations in the host communities, often implicitly or explicitly relying on the traditional "acculturation" model of culture contact.

This model assumes a unidirectionality in which the dominant colonizing "donor" culture transforms the more passive indigenous "recipient" culture of the host community. Similarly, archaeologists have traditionally viewed the social identity of the colonizing group as essentially static, mirroring the culture of the homeland in both ideology and material culture. If items of material culture did not exactly mirror the material culture of the colonial homeland, then they were assumed to reflect a process of local emulation, in which elites (and others) in the host community selectively appropriated high-status symbols and items of colonial material culture.

COMPARATIVE ANALYSES OF COLONIAL ENCOUNTERS

The contributors to this volume examine colonial encounters from two complementary perspectives:

- (1) a "top-down" approach that focuses on local, regional, or interregional political economy, and
- (2) a "bottom-up" approach that emphasizes individual or small group agency as it relates to identity and its transformations. Clearly, these analytical foci are always intertwined at a fundamental level; both are necessary in order to develop a nuanced, holistic understanding of the

complexities of colonial encounters. In fact, one might argue that the very disjunctions and ambiguities that so characterize colonial encounters provide an ideal context for understanding the intersection of political economy and identity. The chapters in this book reflect these complementary approaches.

POST COLONIALISM AND PSYCHOLOGY

Of the theoretical resources typically taken as the underlying foundations of critical social psychology, elements, typically, each of Marxism, feminism, psychoanalysis, and, perhaps chiefly, the 'turn to text' characteristic of Post-Structuralism (Gough & McFadden, 2001; Hepburn, 2003; Parker, 1999, 2002; Walkerdine, 2002), one particular mode of critique remains notably absent, that of post-colonial theory.

What makes this omission so conspicuous is that much postcolonial theory is explicitly psychological in both its concerns and its critica

resources. Fanon's (1986) *Black Skin White Masks*, for example, makes ample reference to various psychological and psychoanalytic formulations as way of accentuating what one might term the 'identity trauma' of blackness in colonial contexts, and as way of articulating the depth and tenacity of the psychical components of racism (Bulhan, 1985).

Homi Bhabha (1983) likewise cross-references a series of psychoanalytic notions – chiefly that of the fetish, but also the condensation and displacement of the dreamwork, and the narcissistic aggressivity of the mirror-stage ego-formation – in his reformulation of that classic social psychological notion of the stereotype.

While the conceptual framework of psychoanalysis is absent in the writings of Steve Biko (1978), his political objectives are powerfully, even if strategically psychological in nature. It is by drawing upon the terms of this discourse of self, identity, subjectivity that certain of the key features of the Black Consciousness Movement come to light.

In many ways Black Consciousness takes as its goal exactly the consolidation of positive and politicized forms of black culture and identity, certainly inasmuch as they play their role in generating political solidarity amongst the oppressed.

Each of these above sets of critical formulations provide powerful ways of thinking the conjunction of the psychological and the political, the affective and the structural, the psychical and the governmental. We have as such a powerfully critical combination of registers that one would take to lie at the centre of critical psychology's ostensibly critical concerns (Hayes, 1989; Hook, 2004a). Why then have such post- or anti-colonial thinkers not featured more strongly in the conceptual resources of critical social psychology? How might their work, and their characteristic concerns – racism, colonial discourse, cultural dispossession, alterity

psychical mutilation, resistance, etc. - alert us to gaps in the growing orthodoxy of critical psychology.

To approach the question from another direction: what might be said to be the 'critical psychology' of these theorists, and particularly of Frantz Fanon and Steve Biko? How might their use of the register of the psychological within the political and their concerns with the cultural dynamics of colonisation alert us to the possibilities of psychology as a vocabulary of resistance?

Furthermore, what does each of these critics have to tell us about the crowning problematic of the colonial and postcolonial condition, namely that of racism, a phenomena that seems as political as it does psychical in nature? Before turning to a brief discussion of the work of each of the above theorists it will be necessary to underline what I mean when I refer both to 'critical social psychology' and 'postcolonial criticism'.

Critical social psychology and political critique There have been a series of attempted definitions of critical social psychology of late. Gough & McFadden (2001), for example, have put forward an understanding of a critical social psychology that 'challenges social institutions and practices – including the discipline of psychology – that contribute to forms of inequality and oppression' (p. 2).

This is a version of social psychology, they suggest, in which practitioners situate themselves within society and its problems, a social psychology which 'gets involved, which adopts particular positions in important debates on...issues such as prejudice, violence...crime, etc' (p. 2).

Valerie Walkerdine (2002) has similarly suggested a move away from the academy to politics, an understanding of a critical psychology that expresses a pronounced commitment to the theories of poststructuralism, and that stresses the importance 'not of psychology per se, but...of the subject and conceptions o

subjectivity for politics' (p. 1). Critical psychology she claims is hence 'an umbrella term which describes a number of politically radical responses to and differences from mainstream psychology...[including] perspectives of...feminism, ethnic and anti-racist politics' (Walkerdine, 2002, p. 2).

Tellingly however, Walkerdine (2002) comments on how the political commitment which has generated such anti-racist, feminist, gay liberation changes seems largely 'to have been lost' (p. 2) Hepburn (2003) thinks of critical social psychology as focussed on issues of politics, morality and social change, and as being predominantly concerned with issues of oppression, exploitation and human well-being.

Critical social psychology though is also 'critical of psychology itself...its assumptions, its practices' (p. 1). However, she notes (2003), this dual task of criticizing society and criticizing the discipline sometimes leads to these two factors working against one another.

Postcolonial criticism Having identified an area of concern within the general domain of critical psychology, we should now turn our attention to introducing the 'postcolonial'. In this connection, we may turn to Homi Bhabha who provides an adroit summary of both the concerns and the scope of postcolonial criticism.

(Although I will not discuss Bhabha's work in any detail here, he usefully enables us to frame the discussion of the writings of Fanon and Biko, and to emphasize at certain points, trenchant points of my overall argument). Postcolonial criticism, he writes 'bears witness to the unequal and uneven forces of cultural representation involved in the contest for political and social authority within the modern world' (1994, p. 171).

LACK OF DISTINCT DISCIPLINARY IDENTIT

Anthropology brought to the world of ideas and concepts in the 20th century a commitment to empirically-based field research, a concern for understanding the diversity of cultures, a respect for the functional legitimacy of those cultures, and skepticism about the utility of the introduction of

western ideas and technology. By the mid-point in the 20th century, the relatively young disciplines of psychology, demography and epidemiology became prominent in their separate domains providing varied perspectives on health issues. Psychology generated the primary theory and models of intervention for behavioral change that have been applied to a wide range of health concerns including mental health, substance abuse, lifestyle factors related to chronic disease, and HIV/AIDS. Demography, focused on population growth and transition, has played a central role in issues of fertility and family planning, infant and child morbidity, and reproductive health. A key element of international demography has been the Demographic and Health Survey (Macro International, 2005), which has been administered over 200 times in 70 countries. Epidemiological concepts and methods have become the hallmark of studies on infectious and chronic diseases in the US and internationally, and have established the designs and criteria for testing the efficacy of interventions and for monitoring disease vectors through sentinel surveillance. The interface of anthropology with psychology, demography, and epidemiology has involved mutual criticism for much of the latter part of the 20th century. On the one hand anthropology is seen as qualitative, anecdotal, utilizing small samples and limited in its generalizations. On the other hand, anthropologists viewed the three other disciplines as imposing universal theories and results, not providing sufficient recognition of cultural diversity and context, and not utilizing the perspectives of members of the population under study. The broad survey approaches of epidemiology and demography were critically viewed by anthropologists, whereas epidemiologists and demographers looked with some disdain on ethnographic methods. Nevertheless, each of the disciplines had sectors that reached out to one another evolving sub-fields such as personality and culture (Barnouw, 1963; Wallace, 1970), anthropological demography (Kertzer & Fricke, 1997), cultural and social epidemiology (Janes et al., 1986; Trostle, 2005), and cross-cultural psychology (Bingham et al., 1999; Lopez & Guarnaccia 2000). Furthermore, professionals within the respective disciplines have called for greater collaboration to address societal problems (e.g., Sherif, 1963; Janes et al., 1986; Kertzer & Fricke, 1997; Trostle, 2005). The rise of large scale NIH-funded domestic health projects in the realms of chronic disease, mental health, alcohol and drug abuse, and international projects funded by USAID have created the opportunities for the fields of anthropology, psychology and epidemiology to work together in addressing common problems. By the 1980s, research and intervention projects in minority and low income communities in the United States and in developing countries brought together representatives from multiple disciplines to address cultural differences, design interventions, promote behavioral change and evaluate efficacy. The growing degree of disciplinary collaboration was given even more impetus with the emergence of the HIV pandemic. Here was a problem that could not be the province of one discipline and required multiple and innovative approaches to treatment and prevention.

The collaborative process: facilitating and inhibiting factors This project team represented great diversity in terms of country of origin and residence (USA and India), institutional base (universities, nongovernmental institutions, private business and governmental agencies), discipline (anthropology, demography, medicine, microbiology, psychology, and public health), religion (Hindu, Muslim, Christian, and Jewish) and work experience (research and intervention), age (30–63), gender, and socioeconomic and educational background.

The enormous potential for positive production by such a diverse team is balanced with the equivalent potential for misunderstanding and miscommunication both professionally and interpersonally. In this section we examine the inhibiting and facilitating factors that influenced the process of collaboration.

Inhibiting factors Inhibiting factors reflected the influence of geographical distance, institutional

culture, language differences, and disciplinary and personal variations in belief systems and practices. The two parts of the RISHTA team, East and West, were 10,000 miles apart and had to depend on e-mail as the major mode of long distance communication. E-mail can greatly facilitate communication; for example, e-mails sent from the U.S. in the evening could be responded to by morning and e-mails sent in the evening from India were available in the U.S. by early morning. At the same time, e-mail can be a quicker mode of "miscommunication" as short statements are used to sort out complex issues or a lack of communication is viewed as a kind of message. E-mail correspondence thus became another forum for negotiating perspectives and modes of communication across disciplines and cultures. The two collaborating universities each had concerns about the nature of the project.

The demographic university in India was unsure about its role in intervention in local communities, because research and national policy had been its primary foci to date. There has also been some uncertainty expressed at IIPS as to demography's role in sexuality and sexual risk research. Some faculty at IIPS have been concerned that the interest in RISHTA among the demography graduate students has provided too much encouragement for them to focus their Master's and Ph.D. theses on sexual risk. At the same time, UCHC in the U. S. had not shown a strong commitment to international research. The Institute for Community Research primarily focused on local research and intervention but was committed to international work with other current projects in China, India, and South America.

The NIMH grant was received by the UCHC and funds were committed to a sub-contract with IIPS. In the original budget proposal it was envisaged that the U.S. University would receive 80% of the funds and the Indian university 20%. This was estimated largely due to the imbalance in the salaries that were ten times higher in U.S. than in India. However, over the lifetime of the project, additional funds from the U.S. side were allocated to the India side increasing Indian share to the total budget to 35%.

The additional funds were allocated to the India side due to the weakness of the US dollar, the rising costs of personnel in India and the costs associated with STD testing. On the India-side, the staff consists of 18 full-time staff and two faculty, whereas on the US- side there are one full-time faculty equivalent (PI, co-PI and statistician) and two full time staff.

The process of negotiating budgets for the IIPS sub-contract is primarily conducted by the PI (S. Schensul) and the co-PIs at IIPS. Despite the re-budgeting there is a sense on the India-side that flexible funds are always available on the US-side and that cost- overruns and expansion of the sub-contract is always possible, giving way to some degree of tension at the beginning and end of each grant year. What is Western: Greek heritage, medieval period and modern period. Structuralism, Functionalism, Psychoanalytical, Gestalt, Behaviorism, Humanistic-Existential, Transpersonal, Cognitive revolution, Multiculturalism

WESTERN: GREEK HERITAGE, MEDIEVAL PERIOD AND MODERN PERIOD. STRUCTURALISM, FUNCTIONALISM, PSYCHOANALYTICAL, GESTALT, BEHAVIORISM, HUMANISTIC-EXISTENTIAL, TRANSPERSONAL, COGNITIVE REVOLUTION, MULTICULTURALISM

Western psychology greek heritage

The roots of western psychology can be traced to Greek philosophy. The word psychology itself is derived from the Greek words 'psyche' which means soul and 'logos' which means study.

Psychology thus started as a part of philosophy and became an independent discipline much later.

Plato and Aristotle were among the first philosophers who thought about the mind. Plato believed that body and mind are two separate entities and mind could exist even after death. But he was positive in that education can bring change to the basic nature of the mind. Aristotle, who was the disciple of Plato, followed the feet of his teacher and believed in the body-mind duality. But he thought that of each of these is the manifestation of the other. He, but, was pessimistic about the role of education in changing the fundamental nature of humans.

Rene Descartes, the French philosopher and mathematician, who originated the Cartesian system of coordinates or the coordinate geometry, also believed in the body-mind duality. But he was open enough to consider that there is an uninterrupted transaction between the body and the mind

In the eighteenth century AD, John Locke, a British national, proposed that knowledge depends upon the experience based on the sense organ and that thinking is not innate. He also considered that the mind of a newly-born child is like a clean-slate on which anything can be written. Locke believed that knowledge occurs only when the sense organs interact with the outer world.

These two ideas – the body-mind duality and the ‘clean-slate’ mind – have been the strong roots of the western psychology for many decades. Only in the twentieth century western psychologists, especially Jung, Maslow and others, were able to break free from this limiting concepts.

In the twentieth century AD, German scientist E.H. Weber attempted a scientific approach in the study of the mind by his finding of the quantitative relation between stimulus intensity and the resultant sensory experience. This was later known as the Weber’s law.

Almost in the same period, G.T. Fechner, who is called the father of quantitative psychology, coined psycho-physics which is the quantitative study of external structures and sensory experience.

Then came Darwin with his revolutionary ‘origin of species’ which influenced psychology and human thought.

In 1879, Wilhelm Wundt, a German scientist, established the world’s first psychological lab at Leipzig, Germany. His aim was to prove that there is a physical activity for every mental activity. He opined that psychologists should study sensation, perception, and emotions.

In the first decade of the 20th Century AD, the Russian psychologist Ivan P. Pavlov made a path breaking finding when he was studying the digestion process in dogs. Before the experimental dog was given food, a bell was sounded. When this was repeated several times, the dog started salivating the very moment it heard the bell sound. Pavlov called this the conditioned reflex. This was one of the greatest findings that made radical changes in the field of psychology.

MAJOR SCHOOLS OF PSYCHOLOGY

Structuralism

Titchner and his followers said that consciousness can be analyzed into three—sensation, perception and feeling. Titchner and his followers are called structuralists and their main method for study of mind was introspection.

Functionalism:-

William James, the father of American

Psychology, J.R. Angell and John Dewey argued that psychologists should study the function of the mind and not its structure. These group of psychologists are called functionalists.

FREUD AND PSYCHO ANALYSIS

Sigmund Freud of Vienna, who is considered as the father of modern psychology, originated a new method called the Free Association Technique. Freud considered that mind has three parts – the conscious, the pre-conscious and the unconscious. He considered that 90% of the mind is the unconscious mind. He argued that Id (unconscious mind) is the seat of repression, and instincts. Freud further considered that behind any behavior is the libido energy.

He divided the personality into three – id, ego, superego. Of these, Id goes after pleasure and thus is said to be governed by the pleasure principle. Ego which is the organized part of Id is driven by the Reality Principle. Superego connects the id to the external world and is considered the conscience. Later, Erich Fromm, Karen Horney, Erik Erikson, Harry Sullivan and Otto Rank improved upon the ideas of Freud and so they are called Neo Freudians.

ALFRED ADLER AND INDIVIDUAL PSYCHOLOGY

Alfred Adler gave the focus to society because he thought that since we are social animals we should give emphasis on social factors.

He argued that, the will to power and superiority are thus more important than sex or will to pleasure. So, the individual will try to overcome the deficits he has or he thinks he has. He will try to show superiority or ambition. Inferiority complex is the most important concept Adler added to psychology. His psychology is called Individual Psychology.

JUNG AND ANALYTICAL PSYCHOLOGY

Carl Gustav Jung, like Adler, was in the psychoanalytical camp in the beginning, but later parted with Freud to create his own (school of) psychology called the Analytical Psychology. He dismissed the Freudian theory that the only motive that drive the unconscious is sex. Jung extended the concept of the unconscious beyond the individual. Thus he said that there is a collective unconscious besides the individual unconscious. He postulated that the racial memory of centuries is precipitated in the unconscious of each individual. According to him, the main ingredient of the collective unconscious is the archetype.

BEHAVIORISM

John B. Watson, also of America, proposed that psychologists as scientists should study observable human nature and not the concepts like mind, consciousness etc.

He and his followers tried to explain behavior based on stimulus and response. They are called behaviorists and their school of psychology is called behaviorism. Tolman, Hull and B.F. Skinner are the later behaviorists. Skinner originated operant conditioning which is one of the most used techniques for psychological therapy today.

GESTALT PSYCHOLOGY

Gestalt Psychology was a reaction to the over emphasis of reductionistic methods in psychology. The gestalt psychologists were against this blind reliance on analysis and reductionism. They

believed that behavior should be understood in a holistic way. Max Wertheimer, Wolfgang Kohler, Kurt Lewin were the first proponents of this school psychology.

HUMANISTIC PSYCHOLOGY

Some psychologists believed that neither Freud et al nor the behaviorists could include the complexity and uniqueness of man their studies of psychology. So a group of psychologists gave human experience more importance and they are called humanists. They argued that man is a subjective animal. The humanists counted that the motives for development and to become perfect are more important than sex, power etc. They brought back the dignity of man that Freud and others undignified. They denied Freudian unconscious or behavioristic environment as the ultimate basis of behavior and said that man is not a slave of either the unconscious or the situation. Gestalt psychology, Indian Psychology, Psychology of Consciousness, Environmental Psychology, Para Psychology are the schools of psychology that are included in Humanistic psychology. Gordon W Allport, Carl Rogers, and Abraham Maslow are some of the early proponents of humanistic psychology.

THE THREE MAJOR FORCES IN MODERN PSYCHOLOGY

There are three major forces in psychology. Freudian Psychoanalysis and the offshoots from it are considered the First Force in Psychology. This has been very dominant in the earlier part of the 20th century but has given way to the second force in psychology called behaviorism. Currently, behaviorism is also slowly reaching its end. Slowly, holistic and more natural ways are coming to the main stream.

This is the third force in psychology – the Humanistic Psychology. Many experts foresee that by the first or second decade of the 21st century, humanistic psychology will become the dominant major force. This is because that man will slowly come to realize that the origin of bliss is in himself and so man will turn to himself for truth, beauty, happiness, success, and achievement. Neither Freudian psychology nor Behaviorism can be of definite help in this stage.

MEDIEVAL PERIOD AND MODERN PERIOD OF PSYCHOLOGY

The Middle Ages has had a poor reputation among twentieth-century psychologists. Edwin Boring, in *A History of Experimental Psychology* (New York, 1929), held that late medieval thinking was based largely on theology and hence tended to be opposed to science. Gregory Zilboorg, in his *History of Medical Psychology* (New York, 1941), claimed that medieval medical practitioners were afraid to look into either normal or abnormal psychology and that the mentally ill were frequently regarded either as possessed by a devil or as witches. Introductory texts have occasionally taken this argument several stages further, claiming that the mentally ill in the Middle Ages were liable to be tortured or burnt at the stake as a consequence of the belief that they were possessed by a devil.

Historians of psychology in the later twentieth century did not substantiate claims that the mentally ill were routinely treated with cruelty in the Middle Ages. Moreover, they generally took a more sympathetic view of the period, finding that medieval philosophers, physicians, and even theologians produced and debated interesting theories of human behavior, although they seem to have done little to test them experimentally.

THE MIDDLE AGES

The Middle Ages are reckoned to run from the fourth or fifth century CE to the middle or end of the fifteenth century CE. A period of nearly 1,000 years naturally saw a great deal of change, not only politically, but also intellectually. In Western and Central Europe at least, the first part of the Middle Ages (until the eleventh century), is known as the Dark Ages, when the relative political and economic backwardness of society, which followed the collapse of the Roman Empire in the west and the breakdown of the Mediterranean world, was reflected in an apparently impoverished intellectual culture.

Few writings of any kind survived from this period, and ancient writers like Plato and Aristotle seem to have been little read. Read more about The Middle Ages.

MEDIEVAL PSYCHOLOGY

There was no formal discipline called psychology in the Middle Ages, but a number of medieval writers, particularly those from the thirteenth century, discussed concerns similar to those of present day psychologists. More important, at least a few, for example, Avicenna and Albertus Magnus (1193-1280), seem to have been genuinely interested in psychological theory. It is possible to discern at least two important psychological traditions in the writing of this period: a medical and a philosophical one, both stemming from ancient predecessors. Read more about Medieval Psychology. From a 21st-century perspective, looking to our medieval ancestors for help in understanding the mind would seem to be a backward step. Those were the days, we think, of supernatural forces intervening in human affairs, and with views of medicine, biology and psychology that strike the modern reader as primitive and unsatisfyingly pre-scientific. A progressive view of human knowledge that sees it as inexorably proceeding towards greater understanding would suggest that we have little to learn from a psychology dating from the days before science.

Yet ideas about the mind in the medieval period, itself a huge span of time (from the late classical period to the 15th century) that saw many shifts in thought, were much more sophisticated than that caricature would allow. Here, we set out some prominent medieval models of mind and their implications for understanding memory, imagination, emotion and the relations between mind and body. Why should we look back to medieval ideas about the mind? One reason is that the Middle Ages saw considerable engagement with questions of mind, body and affect, and the development of sophisticated thinking about psychology – at least among the educated élite, many of them clerics, who read and wrote the texts that have been passed down to us. Another reason is that medieval texts open onto a psychology that was not dominated, as many recent discourses are, by essentially Cartesian notions of mind/body dualism. Before Descartes, mind and body were seen to interlink in ways that have a remarkably modern flavour.

Understanding medieval psychology, though, is fraught with problems. Interpreting any texts or images from so long ago requires a shift of belief systems, in order to appreciate the ontology and background of assumptions with which medieval thinkers operated. Social and cultural contexts were very different. Western medieval writing assumed a Christian thought world, and writing was frequently seen as the domain of men. Psychology was most of all the realm of theologians, who were interested in questions of desire, will, intention, sin and virtue. We cannot look for a straightforward cross-section of medieval thought: much writing is by religious men, and personal testimonies and accounts of experience are inevitably filtered through assumptions concerning gender, class and religious belief – as well as genre.

But hazards are also opportunities: medieval piety foregrounded affective experience, meditation

and prayer, and the need to shun distractions in order to stay focused on those tasks. We can also look to imaginative fiction, which offers especially valuable insights into cultural attitudes and experience, of both men and women, and which suggests how ideas of mind, body and affect carried over into secular culture.

SENSORY AND EMOTIONAL CHARGE

We aim to show how medieval writers approached the mind, highlighting some areas in which their ideas are particularly relevant to, and even prescient for, today's scientific psychology. Just as modern psychology can be understood as a development of and challenge to Cartesian ideas about the separation of mind from body, so medieval writers about the mind were working from the starting point of a particular intellectual landscape. Hippocrates' theory of the four humours, developed by Galen in the second century CE, underpinned the notion of a mind-body continuum, for humours shaped both mind and body. The distinction between mind and body was complex and more fluid than in post-Cartesian thought, complicated by ideas of the soul, by different views on where in the body faculties were situated, and by the integration of thought and affect.

The term 'mind' originated with the concept of memory, but quickly came to overlap with notions of the soul, and took on at least some aspects of current definitions of mind. Aristotle had situated the rational or intellective quality within the soul, and had located the heart as the centre of the senses and cognitive faculties; Galen by contrast associated these with the brain.

Neo-Platonic theories situated the immortal and rational part of the soul in the head, and the appetites and emotions in the trunk of the body. In the fourth century, St Augustine saw the will as a faculty of the (superior) soul and associated emotions with the (lower) body, but also saw emotions as having both cognitive and bodily aspects (Kemp, 1990).

MEDIEVAL COGNITIVE PSYCHOLOGY

Medieval ideas about cognitive psychology derive from two major sources, the writings of Aristotle and especially his work on the soul, the *De Anima*, and the theory of the inner senses, which was laid down in late antiquity. Aristotle's *De Anima* may be the most popular psychological text of all time: It was prescribed reading for Bachelor of Arts degrees throughout Europe until the end of the Middle Ages. The book is short and at times obscure, but it offers a systematic account of psychology with Aristotle's ideas about other disciplines. Because of its obscurity, a number of medieval scholars wrote books or commentaries in which they set out what they thought Aristotle meant. Those by Averroes and Aquinas are probably the best known. Read more about Medieval Cognitive Psychology.

MENTAL ILLNESS IN THE MIDDLE AGES

Medieval ideas about mental illness were almost as bewildering an assortment as our own, but a unifying theme was supplied by the cognitive theory outlined here. It was generally believed that the normal waking person's activities were under the control of the mind. In cases of insanity this control was disrupted or corrupted and behavior would then, like an animal's, be simply determined by the inner senses and the appetites. Consequently, in later medieval legal theory and practice, and in the writings of theologians, the insane were not held accountable for their actions. Read more about Mental Illness in the Middle Ages.

STRUCTURALISM OF PSYCHOLOGY

Structuralism, in psychology, a systematic movement founded in Germany by Wilhelm Wundt and mainly identified with Edward B. Titchener. Structuralism sought to analyze the adult mind (defined as the sum total of experience from birth to the present) in terms of the simplest definable components and then to find the way in which these components fit together in complex forms.

The major tool of structuralist psychology was introspection (a careful set of observations made under controlled conditions by trained observers using a stringently defined descriptive vocabulary). Titchener held that an experience should be evaluated as a fact, as it exists without analyzing the significance or value of that experience. For him, the “anatomy of the mind” had little to do with how or why the mind functions. In his major treatise, *A Textbook of Psychology* (1909–10), he stated that the only elements necessary to describe the conscious experience are sensation and affection (feeling). The thought process essentially was deemed an occurrence of sensations of the current experience and feelings representing a prior experience.

Although structuralism represented the emergence of psychology as a field separate from philosophy, the structural school lost considerable influence when Titchener died. The movement led, however, to the development of several countermovements that tended to react strongly to European trends in the field of experimental psychology. Behaviour and personality were beyond the scope considered by structuralism. In separating meaning from the facts of experience, structuralism opposed the phenomenological tradition of Franz Brentano’s act psychology and Gestalt psychology, as well as the functionalist school and John

B. Watson’s behaviourism. Serving as a catalyst to functionalism, structuralism was always a minority school of psychology in America.

CULTURE-AND-PERSONALITY STUDIES

Culture-and-personality studies, also called **psychological anthropology**, branch of cultural anthropology that seeks to determine the range of personality types extant in a given culture and to discern where, on a continuum from ideal to perverse, the culture places each type. The type perceived as ideal within a culture is then referred to as the “personality” of the culture itself, as with duty-bound stoicism among the English and personal restraint among traditional Pueblo Indians.

Culture-and-personality studies apply the methods of psychology to the field of anthropology, including in-depth interviews, role playing, Rorschach tests, elaborate biographies, studies of family roles, and dream interpretation. Most popular in the 1930s and '40s, psychological anthropology is exemplified by the works of American anthropologist Ruth Benedict, especially *Patterns of Culture* (1934) and *The Chrysanthemum and the Sword* (1946). Benedict and other proponents of culture-and-personality studies directed the attention of anthropologists to the symbolic meanings and emotional significance of cultural features that had hitherto been considered primarily through functional analysis; at the same time, they led psychologists to recognize the existence of an inevitable cultural component in all processes of perception, motivation, and learning.

Culture-and-personality studies lost traction in the 1960s and '70s, an era characterized by shifting scholarly sensibilities and the critical reexamination of many fundamental anthropological concepts.

NEUROPSYCHOLOGY

Observations on behaviour with neurological observations on the central nervous system (CNS), including the brain. The field emerged through the work of Paul Broca and Carl Wernicke (1848–1905), both of whom identified sites on the cerebral cortex involved in the production or comprehension of language. Great strides have since been made in describing neuroanatomical systems and their relation to higher mental processes. The related field of neuropsychiatry addresses itself to disorders such as aphasia, Korsakoff syndrome, Tourette syndrome, and other CNS abnormalities. See also laterality.

COGNITIVE PSYCHOLOGY

Cognitive psychology, Branch of psychology devoted to the study of human cognition, particularly as it affects learning and behaviour. The field grew out of advances in Gestalt, developmental, and comparative psychology and in computer science, particularly information-processing research. Cognitive psychology shares many research interests with cognitive science, and some experts classify it as a branch of the latter. Contemporary cognitive theory has followed one of two broad approaches: the developmental approach, derived from the work of Jean Piaget and concerned with “representational thought” and the construction of mental models (“schemas”) of the world, and the information-processing approach, which views the human mind as analogous to a sophisticated computer system.

FUNCTIONALISM OF PSYCHOLOGY

U.S. during the late 19th century that attempted to counter the German school of structuralism led by Edward B. Titchener. Functionalists, including psychologists William James and James Rowland Angell, and philosophers George H. Mead, Archibald L. Moore, and John Dewey, stressed the importance of empirical, rational thought over an experimental, trial-and-error philosophy. The group was concerned more with the capability of the mind than with the process of thought. The movement was thus interested primarily in the practical applications of research.

The union between theory and application reached its zenith with John Dewey’s development of a laboratory school at the University of Chicago in 1896 and the publication of his keystone article, “The Reflex Arc Concept in Psychology” (1896), which attacked the philosophy of atomism and the concept of elementarism, including the behavioral theory of stimulus and response. The work of John Dewey and his associates stimulated the progressive-school movement, which attempted to apply functionalist principles to education. In the early and mid-20th century, an offshoot theory emerged: the transactional theory of perception, the central thesis of which is that learning is the key to perceiving.

Although functionalism has never become a formal, prescriptive school, it has served as a historic link in the philosophical evolution linking the structuralist’s concern with the anatomy of the mind to the concentration on the functions of the mind and, later, to the development and growth of man.

PARAPSYCHOLOGY,

Discipline concerned with investigating events that cannot be accounted for by natural law and knowledge that cannot have been obtained through the usual sensory abilities. Parapsychology studies the cognitive phenomena often called extrasensory perception, in which a person acquires knowledge of other people’s thoughts or of future events through channels apparently beyond the

five senses. It also examines physical phenomena such as the levitation of objects and the bending of metal through psychokinesis.

Though belief in such phenomena may be traced to earliest times, parapsychology as a subject of serious research originated in the late 19th century, partly in reaction to the growth of the spiritualist movement. The Society of Psychical Research was established in London in 1882, and similar societies were later founded in the U.S. and in many European countries. In the 20th century research into parapsychology was also conducted at some universities, notably at Duke University under J. B. Rhine

PSYCHOANALYTIC OF PSYCHOLOGY

The rise of pharmacological treatments for emotional distress and psychiatric conditions has led some to proclaim the end of psychoanalysis – or to dismiss it as having an insufficient basis in scientific data. But it would be a mistake to count this form of talk therapy out. Research suggests that the psychoanalytic approach still plays an important therapeutic role. And Freud's theory of mind remains a fundamental part of many talk therapies, including psychoanalysis.

Psychoanalysis is a method of treating emotional difficulties that involves communication between a psychoanalyst and an individual, with the goal of gaining insight into the individual's inner world and how it affects his or her emotions, behavior, and relationships.

Psychoanalysis is also a system of ideas about the human mind and personality. Although both the method and the theory have advanced since Freud's day, some of his basic ideas continue to shape our thinking about human behavior and functioning.

One fundamental Freudian concept is the powerful effect of the unconscious part of the mind on our feelings, actions, relationships, and endeavors. Unconscious conflicts can cause anxiety, moodiness, or depressive thoughts; troubling personality traits; or difficulties at work or in finding or maintaining long-term relationships. Many such problems have their roots in past experiences and relationships.

Psychoanalysis seeks to bring troubling unconscious forces into conscious awareness. With the insights gained during analysis, the patient can work at improving relationships and productivity, interrupt self-defeating or self-destructive patterns, and perhaps even unlock creative potential

HOW IT WORKS

The psychoanalyst and patient meet three to five times a week. This intensive schedule of one-on-one sessions helps establish the psychoanalyst's office as a place where the patient can safely free-associate – that is, talk about whatever comes to mind, whenever it comes to mind – and develop a deep bond with the analyst. The frequent meetings also encourage the emergence of the patient's full range of personality traits and behavior patterns, an important step on the path to self-understanding. Use of the couch, a holdover from Freud's day, is no longer required. Some people find that lying down facilitates free association and helps them focus their thoughts inward. Others find it more helpful to sit face to face with the analyst.

Psychoanalysis is a collaborative effort. As the patient free-associates, the analyst listens carefully and helps her grasp the underlying unconscious sources of her difficulties. To encourage this awareness, the analyst not only interprets ongoing patterns (interpretations the patient is welcome to amend, reject, or supplement), but also encourages the patient to re-experience them in the safety of the analytic setting. In psychoanalytic parlance, this is known as "transference." The patient re-lives her life's story by transferring to the analyst feelings and attitudes she originally experienced

in her relationships with other people.

For example, a woman consistently arrives 10 or 15 minutes late for her appointments, and the analyst learns that she also does this with her boss and her husband. By examining the feelings the analyst arouses as she talks about her reasons for being late — or perhaps realizing her anger with authority figures — she can begin to become conscious of her motives for wanting to make others wait for her or become angry at her.

Psychoanalysis is a lengthy process, usually requiring several years — 5.7 years, on average, according to one survey — to resolve long-standing difficulties, such as self-defeating behavior patterns or problems forming personal relationships. One reason it can take so many sessions is that, like old habits, maladaptive life patterns "die hard." There may be many variations to work through. The hope is that over time, the individual can recover lost emotional connections, give up unhealthy ones, and adapt more effectively to her current circumstances.

Psychoanalysis may help with such complaints as "I have difficulty finding a suitable partner," "I never feel excited about my friendships," or "I keep missing deadlines at work and sabotaging my career." Less intensive psychotherapy may be more appropriate for short-term concerns such as "I'm very sad that my child is leaving for college," unless these feelings are related to longer-standing behavior patterns. Distressing symptoms such as phobias, anxieties, and depression also respond to psychoanalysis, sometimes with the help of a medication.

Health insurance may cover part — though given the current emphasis on short-term treatment, generally not all — of the cost of psychoanalysis. Treatment is often available for a reduced fee at a psychoanalytic training institute (see "How to find a psychoanalyst"). Also, the analyst and patient may work out a lower fee or method of delayed payments.

HOW IT DIFFERS FROM OTHER PSYCHOTHERAPY

There are many types of psychoanalytically informed psychotherapy, and many approaches used in psychotherapy today grew out of classical psychoanalysis. These variant forms are usually less intensive versions of psychoanalysis. Expressive and psychodynamic psychotherapy, for example, emphasize the importance of finding unconscious motivations and gaining insight into one's actions and feelings. By contrast, short-term structured therapies such as cognitive behavioral therapy, which is outside the psychoanalytic tradition, focus on resolving current symptoms and behavioral problems without necessarily developing insight into their origins.

Psychoanalysis may not be for everyone, but many women with emotional difficulties can benefit from psychodynamic psychotherapy — that is, meeting with a therapist once a week to discuss painful feelings that may underlie a specific problem or pattern of thinking or behavior. Like psychoanalysis, it assumes that the unconscious is involved and that past experiences and relationships can affect the present. Psychodynamic psychotherapy can last anywhere from a few months to several years. Both psychoanalysis and psychodynamic psychotherapy can be combined with medication, couples' therapy, group therapy, or family therapy.

QUALIFICATIONS FOR PSYCHOANALYSTS

For many years, psychoanalytic training in the United States was available only to medical doctors, but now there are several reputable psychoanalysis programs that don't require an M.D. for admission. They generally do require an advanced degree, however. Psychologists (Ph.D. or Psy.D.) and

clinical social workers(M.S.W. or C.S.W.) as well as psychiatrists and other M.D.s are al eligible for training as psychoanalysts. The training includes four tofive years of classes and supervised work with patients, and an aspiring psychoanalyst must undergo psychoanalysis herself.

GESTALT OF PSYCHOLOGY

Gestalt psychology is a school of thought that looks at the human mind and behavior as a whole. When trying to make sense of the world around us, Gestalt psychology suggests that we do not simplyfocus on every small component. Instead, our minds tend to perceive objects as part of a greater whole and as elements of more complex systems. This school of psychology played a major role in the modern development of thestudy of human sensation and perception.

A BRIEF HISTORY

Originating in the work of Max Wertheimer, Gestalt psychologyformed partially as a response to the structuralism of Wilhelm Wundt. While Wundt was interested in breaking down psychological mattersinto their smallest possible part, the Gestalt psychologists were instead interested in looking at the totality of the mind and behavior. The guiding principle behind the Gestalt movement was that the whole was greater than the sum of its parts.

The development of this area of psychology was influenced by anumber of thinkers, including Immanuel Kant, Ernst Mach, and Johann Wolfgang von Goethe. The development of Gestalt psychology was influenced in part by Wertheimer's observations one day at a train station. He purchaseda toy stroboscope which displayed pictures in a rapid sequence mimic the appearing movement. He later proposed the concept ofthe Phi phenomenon in which flashing lights in sequence can leadto what is known as apparent motion.¹

In other words, we perceive movement where there is none. Moviesare one example of apparent motion. Through a sequence of still frames, the illusion of movement is created. "The fundamental 'formula' of Gestalt theory might be expressed inthis way," Max Wertheimer wrote. "There are wholes, the behavior of which is not determined by that of their individual elements, but where the part-processes are themselves determined by the intrinsic nature of the whole. It is the hope of Gestalt theory to determine the nature of such wholes."

MAJOR GESTALT PSYCHOLOGISTS

There were a number of thinkers who had an influence on Gestaltpsychology. Some of the best-known Gestalt psychologists included:

Max Wertheimer: Regarded as one of the three founders of Gestaltpsychology, Wertheimer is also known for his concept of the phi phenomenon. The phi phenomenon involves perceiving a series of still images in rapid succession in order to create the illusion of movement.

Kurt Koffka: Know as one of the three founders of Gestalt psychology, Kurt Koffka had diverse interests and studied manytopics in psychology including learning, perception, and hearingimpairments.

Wolfgang Kohler: Also a key founding figure in the history of the Gestalt movement, Kohler also famously summarized Gestalt theor by saying, "The whole is different than the sum of its parts." He wasalso known for his research on problem-solving, his criticisms of

the introspection used by the structuralists to study the human mind, and his opposition to behaviorism.

GESTALT LAWS OF PERCEPTUAL ORGANIZATION

Have you ever noticed how a series of flashing lights often appear to be moving, such as neon signs or strands of Christmas lights? According to Gestalt psychology, this apparent movement happens because our minds fill in the missing information. This belief that the whole is greater than the sum of the individual parts led to the discovery of several different phenomena that occur during perception.

ORGANIZATION

In order to better understand how human perception works, Gestalt psychologists proposed a number of laws of perceptual organization, including the laws of similarity, Prägnanz, proximity, continuity, and closure.

SIMILARITY

The law of similarity suggests that similar items tend to be grouped together.² If a number of objects in a scene are similar to one another, you will naturally group them together and perceive them as a whole. For example, a series of circles or squares stacked together will be viewed as a series of columns rather than just individual shapes.

PROXIMITY

The law of proximity suggests that objects near each other tend to be viewed as a group.² If you see a number of people standing close together, for example, you might immediately assume that they are all part of the same social group.

At a restaurant, for example, the host or hostess might assume that people seated next to each other in the waiting area are together and ask if they are ready to be seated. In reality, they may only be sitting near each other because there is little room in the waiting area or because those were the only open seats. Gestalt psychology also helped introduce the idea that human perception is not just about seeing what is actually present in the world around us. Much of what we perceive is heavily influenced by our motivations and expectations.

A WORD FROM VERY WELL

Gestalt psychology did face criticism, particularly in that many of its central concepts can be difficult to define and examine experimentally. While this approach may have lost its identity as an independent school of thought in psychology, its central ideas have had a major influence on the field of psychology as a whole.

Gestalt psychology has largely been subsumed by other fields of psychology, but it had an enormous influence. Other researchers who were influenced by the principles of Gestalt psychology including Kurt Lewin and Kurt Goldstein went on to make important contributions to psychology. The idea that the whole is different than its parts has played a role in other areas including our understanding of the brain and social behavior.

BEHAVIORISM OF PSYCHOLOGY

Behaviorism is a theory of learning which states all behaviors are learned through interaction with the environment through a process called conditioning. Thus, behavior is simply a response to environmental stimuli. Behaviorism is only concerned with observable stimulus-response behaviors, as they can be studied in a systematic and observable manner. The behaviorist movement began in 1913 when John Watson wrote an article entitled 'Psychology as the behaviorist views it,' which set out a number of underlying assumptions regarding methodology and behavioral analysis:

BASIC ASSUMPTIONS

ALL BEHAVIOR IS LEARNED FROM THE ENVIRONMENT:

Behaviorism emphasizes the role of environmental factors in influencing behavior, to the near exclusion of innate or inherited factors. This amounts essentially to a focus on learning. We learn new behavior through classical or operant conditioning (collectively known as 'learning theory'). Therefore, when born our mind is 'tabula rasa' (a blank slate). Psychology should be seen as a science: Theories need to be supported by empirical data obtained through careful and controlled observation and measurement of behavior. Watson (1913) stated that: 'Psychology as a behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is ...prediction and control.' (p. 158) The components of a theory should be as simple as possible. Behaviorists propose the use of operational definitions (defining variables in terms of observable, measurable events). Behaviorism is primarily concerned with observable behavior, as opposed to internal events like thinking and emotion: While behaviorists often accept the existence of cognitions and emotions, they prefer not to study them as only observable (i.e., external) behavior can be objectively and scientifically measured.

Therefore, internal events, such as thinking should be explained through behavioral terms (or eliminated altogether). There is little difference between the learning that takes place in humans and that in other animals: There's no fundamental (qualitative) distinction between human and animal behavior. Therefore, research can be carried out on animals as well as humans (i.e., comparative psychology). Consequently, rats and pigeons became the primary source of data for behaviorists, as their environments could be easily controlled.

BEHAVIOR IS THE RESULT OF STIMULUS-RESPONSE:

All behavior, no matter how complex, can be reduced to a simple stimulus-response association). Watson described the purpose of psychology as: 'To predict, given the stimulus, what reaction will take place; or, given the reaction, state what the situation or stimulus is that has caused the reaction.' (1930, p. 11). Types of Behaviorism Historically, the most significant distinction between versions of behaviorism is that between Watson's original 'methodological behaviorism,' and forms of behaviorism later inspired by his work, known collectively as neobehaviorism (e.g., radical behaviorism).

METHODOLOGICAL BEHAVIORISM

Watson's article '*Psychology as the behaviorist views it*' is often referred to as the 'behaviorist manifesto,' in which Watson (1913, p.158) outlines the principles of all behaviorists: 'Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor

is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all of its refinement and complexity, forms only a part of the behaviorist's total scheme of investigation'.

RADICAL BEHAVIORISM

Radical behaviorism was founded by B.F Skinner and agreed with the assumption of methodological behaviorism that the goal of psychology should be to predict and control behavior.

Skinner, like Watson, also recognized the role of internal mental events, and while he agreed such private events could not be used to explain behavior, he proposed they should be explained in the analysis of behavior. Another important distinction between methodological and radical behaviorism concerns the extent to which environmental factors influence behavior. Watson's (1913) methodological behaviorism asserts the mind is tabula rasa (a blank slate) at birth. In contrast, radical behaviorism accepts the view that organisms are born with innate behaviors, and thus recognizes the role of genes and biological components in behavior.

THE HISTORY OF BEHAVIORISM

- Pavlov (1897) published the results of an experiment on conditioning after originally studying digestion in dogs.
- Watson (1913) launches the behavioral school of psychology, publishing an article, *Psychology as the behaviorist views it*.
- Watson and Rayner (1920) conditioned an orphan called Albert B (aka Little Albert) to fear a white rat.
- Thorndike (1905) formalized the *Law of Effect*.
- Skinner (1936) wrote *The Behavior of Organisms* and introduced the concepts of operant conditioning and shaping.
- Clark Hull's (1943) *Principles of Behavior* was published.
- B.F. Skinner (1948) published *Walden Two*, in which he described a utopian society founded upon behaviorist principles.
- Journal of the *Experimental Analysis of Behavior* begun in 1958.
- Chomsky (1959) published his criticism of Skinner's behaviorism, "*Review of Verbal Behavior*."

BEHAVIORISM SUMMARY BASIC ASSUMPTIONS

Psychology should be seen as a science, to be studied in a scientific manner. Behaviorism is primarily concerned with observable behavior, as opposed to internal events like thinking. Behavior is the result of stimulus–response (i.e., all behavior, no matter how complex, can be reduced to a simple stimulus – response features). Behavior is determined by the environment (e.g., conditioning, nurture).

AREAS OF APPLICATION

Gender Role Development Behavioral Therapy Phobias Education Behavior-Modification Psychopathology Depression. Relationships Moral Development Aggression Addiction **Strengths** The behaviorist approach provides clear predictions. This means that explanations can be scientifically tested and supported with evidence. Real life applications (e.g., therapy) Emphasizes objective measurement. Many experiments to support theories. Identified comparisons between animals (Pavlov) and humans (Watson & Rayner - Little Albert)

LIMITATIONS

Ignores mediational processes Ignores biology (e.g., testosterone) Too deterministic (little free-will) Experiments – low ecological validity Humanism – can't compare animals to humans Reductionist.

CRITICAL EVALUATION

An obvious advantage of behaviorism is its ability to define behavior clearly and to measure changes in behavior. According to the law of parsimony, the fewer assumptions a theory makes, the better and the more credible it is. Behaviorism, therefore, looks for simple explanations of human behavior from a very scientific standpoint. However, behaviorism only provides a partial account of human behavior, that which can be objectively viewed. Important factors like emotions, expectations, higher-level motivation are not considered or explained. Accepting a behaviorist explanation could prevent further research from other perspectives that could uncover important factors.

In addition, humanism (e.g., Carl Rogers) rejects the scientific method of using experiments to measure and control variables because it creates an artificial environment and has low ecological validity.

Humanistic psychology also assumes that humans have free will (personal agency) to make their own decisions in life and do not follow the deterministic laws of science. Humanism also rejects the nomothetic approach of behaviorism as they view humans as being unique and believe humans cannot be compared with animals (who aren't susceptible to demand characteristics). This is known as an idiographic approach.

The psychodynamic approach (Freud) criticizes behaviorism as it does not take into account the unconscious mind's influence on behavior, and instead focuses on externally observable behavior. Freud also rejects the idea that people are born a blank slate (tabula rasa) and states that people are born with instincts (e.g., eros and thanatos).

Biological psychology states that all behavior has a physical/organic cause. They emphasize the role of nature over nurture. For example, chromosomes and hormones (testosterone) influence our behavior too, in addition to the environment.

Cognitive psychology states that mediational processes occur between stimulus and response, such as memory, thinking, problem-solving, etc. Despite these criticisms, behaviorism has made significant contributions to psychology. These include insights into learning, language development, and moral and gender development, which have all been explained in terms of conditioning.

The contribution of behaviorism can be seen in some of its practical applications. Behavior therapy and behavior modification represent one of the major approaches to the treatment of abnormal behavior and are readily used in clinical psychology.

TERMINOLOGY

CLASSICAL CONDITIONING

Classical conditioning refers to learning by association, and involves the conditioning of innate bodily reflexes with new stimuli.

STIMULUS

Any feature of the environment that affects behavior. E.g. in Pavlov's experiments food was a stimulus.

RESPONSE

The behavior elicited by the stimulus. E.g. in Pavlov's experiments salivation was a response.

OPERANT CONDITIONING

Operant conditioning involves learning through the consequences of behavior.

POSITIVE REINFORCEMENT

Presenting the subject with something that it likes. e.g., Skinner rewarded his rats with food pellets.

NEGATIVE REINFORCEMENT

Reward – in the sense of removing or avoiding some aversive (painful) stimulus. e.g., Skinner's rats learned to press the lever in order to switch off the electric current in the cage
Punishment Imposing an aversive or painful stimulus. e.g., Skinner's rats were given electric shocks.

SOCIAL LEARNING THEORY

Social Learning Theory posits that people learn from one another, via observation, imitation, and modeling. The theory has often been called a bridge between behaviorist and cognitive learning theories because it encompasses attention, memory, and motivation.

REDUCTIONISM

Reductionism is the belief that human behavior can be explained by breaking it down into smaller component parts. Reductionists say that the best way to understand why we behave as we do is to look closely at the very simplest parts that make up our systems, and use the simplest explanations to understand how they work. Behaviorism reduces all behavior (no matter how complex) to stimulus-response associations.

HUMANISTIC-EXISTENTIAL PSYCHOTHERAPY

The humanistic approach was introduced in the 1940's in the United States. It can be traced to Abraham Maslow as the founding father, but through time has become closely associated with Carl Rogers. The humanistic and existential approach distinguishes itself from other therapeutic styles

by including the importance of the client's subjective experience, as well as a concern for positive growth rather than pathology. Whereas the key words for humanistic psychotherapy are genuineness, empathy and unconditional positive regard, the major themes of existential therapy are the client's responsibility and freedom.

Humanistic and existential approaches share a belief that clients have the capacity for self-awareness and choice; however, they differ in their theoretical perspectives. The humanistic perspective views human nature as basically good, with a potential to maintain healthy, meaningful relationships and to make choices that are in the best interest of oneself and others. The humanistic therapist accompanies/guides clients to free themselves from assumptions and positions that might be blocking them from living fuller lives. The psychologist encourages and highlights growth and self-actualization, while maintaining that clients have an innate capacity for responsible self-direction. For the humanistic psychologist, not being one's true self is the source of problems.

The existentialist, on the other hand, is more interested in guiding/accompanying clients to find philosophical meaning while they face anxiety. This is done by exploring the importance of choosing to think and act authentically and responsibly. According to existential psychology, the fundamental problems clients face are rooted in anxiety over isolation, loneliness, despair, and, eventually, death. The existential psychologist assumes that the clients' problems are due to not being able to use their judgment or make choices enough/well enough in order to create meaning in their lives.

When outside influences may play a role in the clients' limited ability to carry out choices, the existential psychologist and the clients will confront these influences in order to move forward.

HUMANISTIC AND EXISTENTIAL THERAPIES

Humanistic and existential psychotherapies use a wide range of approaches to case conceptualization, therapeutic goals, intervention strategies, and research methodologies. They are united by an emphasis on understanding human experience and a focus on the client rather than the symptom. Psychological problems (including substance abuse disorders) are viewed as the result of inhibited ability to make authentic, meaningful, and self-directed choices about how to live. Consequently, interventions are aimed at increasing client self-awareness and self-understanding.

Whereas the key words for humanistic therapy are *acceptance* and *growth*, the major themes of existential therapy are client *responsibility* and *freedom*. This chapter broadly defines some of the major concepts of these two therapeutic approaches and describes how they can be applied to brief therapy in the treatment of substance abuse disorders. A short case illustrates how each theory would approach the client's issues. Many of the characteristics of these therapies have been incorporated into other therapeutic approaches such as narrative therapy.

Humanistic and existential approaches share a belief that people have the capacity for self-awareness and choice. However, the two schools come to this belief through different theories. The humanistic perspective views human nature as basically good, with an inherent potential to maintain healthy, meaningful relationship and to make choices that are in the interest of oneself and others. The humanistic therapist focuses on helping people free themselves from disabling assumptions and attitudes so they can live fuller lives. The therapist emphasizes growth and self-actualization rather than curing diseases or alleviating disorders.

This perspective targets present conscious processes rather than unconscious processes and past

causes, but like the existential approach, it holds that people have an inherent capacity for responsible self-direction. For the humanistic therapist, not being one's true self is the source of problems. The therapeutic relationship serves as a vehicle or context in which the process of psychological growth is fostered. The humanistic therapist tries to create a therapeutic relationship that is warm and accepting and that trusts that the client's inner drive is to actualize in a healthy direction.

The existentialist, on the other hand, is more interested in helping the client find philosophical meaning in the face of anxiety by choosing to think and act authentically and responsibly. According to existential therapy, the central problems people face are embedded in anxiety over loneliness, isolation, despair, and, ultimately, death. Creativity, love, authenticity, and free will are recognized as potential avenues toward transformation, enabling people to live meaningful lives in the face of uncertainty and suffering. Everyone suffers losses (e.g., friends die, relationships end), and these losses cause anxiety because they are reminders of human limitations and inevitable death.

The existential therapist recognizes that human influence is shaped by biology, culture, and luck. Existential therapy assumes the belief that people's problems come from not exercising choice and judgment enough—or well enough—to forge meaning in their lives, and that each individual is responsible for making meaning out of life. Outside forces, however, may contribute to the individual's limited ability to exercise choice and live a meaningful life. For the existential therapist, life is much more of a confrontation with negative internal forces than it is for the humanistic therapist.

In general, brief therapy demands the rapid formation of a therapeutic alliance compared with long-term treatment modalities. These therapies address factors shaping substance abuse disorders, such as lack of meaning in one's life, fear of death or failure, alienation from others, and spiritual emptiness. Humanistic and existential therapies penetrate at a deeper level to issues related to substance abuse disorders, often serving as a catalyst for seeking alternatives to substances to fill the void the client is experiencing.

The counselor's empathy and acceptance, as well as the insight gained by the client, contribute to the client's recovery by providing opportunities for her to make new existential choices, beginning with an informed decision to use or abstain from substances. These therapies can add for the client a dimension of self-respect, self-motivation, and self-growth that will better facilitate his treatment. Humanistic and existential therapeutic approaches may be particularly appropriate for short-term substance abuse treatment because they tend to facilitate therapeutic rapport, increase self-awareness, focus on potential inner resources, and establish the client as the person responsible for recovery. Thus, clients may be more likely to see beyond the limitations of short-term treatment and envision recovery as a lifelong process of working to reach their full potential.

Because these approaches attempt to address the underlying factors of substance abuse disorders, they may not always directly confront substance abuse itself. Given that the substance abuse is the primary presenting problem and should remain in the foreground, these therapies are most effectively used in conjunction with more traditional treatments for substance abuse disorders. However, many of the underlying principles that have been developed to support these therapies can be applied to almost any other kind of therapy to facilitate the client-therapist relationship.

USING HUMANISTIC AND EXISTENTIAL THERAPIES

Many aspects of humanistic and existential approaches (including empathy, encouragement of affect, reflective listening, and acceptance of the client's subjective experience) are useful in any type

of brief therapy session, whether it involves psychodynamic, strategic, or cognitive-behavioral therapy. They help establish rapport and provide grounds for meaningful engagement with all aspects of the treatment process.

While the approaches discussed in this chapter encompass a wide variety of therapeutic interventions, they are united by an emphasis on *lived* experience, authentic (therapeutic) relationships, and recognition of the subjective nature of human experience. There is a focus on helping the client to understand the ways in which reality is influenced by past experience, present perceptions, and expectations for the future. Schor describes the process through which our experiences assume meaning as *apperception*. Becoming aware of this process yields insight and facilitates the ability to choose new ways of being and acting.

For many clients, momentary circumstances and problems surrounding substance abuse may seem more pressing, and notions of integration, spirituality, and existential growth may be too remote from their immediate experience to be effective. In such instances, humanistic and existential approaches can help clients focus on the fact that they do, indeed, make decisions about substance abuse and are responsible for their own recovery.

ESSENTIAL SKILLS

By their very nature, these models do not rely on a comprehensive set of techniques or procedures. Rather, the personal philosophy of the therapist must be congruent with the theoretical underpinnings associated with these approaches. The therapist must be willing and able to engage the client in a genuine and authentic fashion in order to help the client make meaningful change. Sensitivity to "teachable" or "therapeutic" moments is essential.

WHEN TO USE BRIEF HUMANISTIC AND EXISTENTIAL THERAPIES

These approaches can be useful at all stages of recovery in creating a foundation of respect for clients and mutual acceptance of the significance of their experiences. There are, however, some therapeutic moments that lend themselves more readily to one or more specific approaches. The details of the specific approaches are laid out later in this chapter. *Client-centered* therapy, for example, can be used immediately to establish rapport and to clarify issues throughout the session. *Existential* therapy may be used most effectively when a client is able to access emotional experiences or when obstacles must be overcome to facilitate client's entry into or continuation of recovery (e.g., to get someone who insists on remaining helpless to accept responsibility). *Narrative* therapy may be used to help the client conceptualize treatment as an opportunity to assume authorship and begin a "new chapter" in life. *Gestalt* approaches can also be used throughout therapy to facilitate a genuine encounter with the therapist and the client's own experience. *Transpersonal* therapy can enhance spiritual development by focusing on the intangible aspects of human experience and awareness of unrealized spiritual capacity. These approaches increase self-awareness, which promotes self-esteem and allows for more client responsibility, thus giving the client a sense of control and the opportunity to make choices. All of these approaches can be used to support the goals of therapy for substance abuse disorders.

DURATION OF THERAPY AND FREQUENCY OF SESSIONS

Although many aspects of these approaches are found in other therapeutic orientations, concepts like empathy, meaning, and choice lie at the very heart of humanistic and existential therapies. They are particularly valuable for brief treatment of substance abuse disorders because they increase therapeutic rapport and enhance conscious experience and acceptance of responsibility. Episodic

treatment could be designed within this framework, with the treatment plan focusing on the client's tasks and experience between sessions. Humanistic and existential therapies assume that much growth and change occur outside the meetings. When focused on broader problems, these therapies can be lifelong journeys of growth and transformation. At the same time, focusing on specific substance abuse issues can provide a framework for change and more discrete goals. These techniques will also work well in conjunction with other types of therapy.

INITIAL SESSION

The opening session is extremely important in brief therapy for building an alliance, developing therapeutic rapport, and creating a climate of mutual respect. Although the approaches discussed in this chapter have different ways of addressing the client's problems, the opening session should attempt the following:

- Start to develop the alliance
- Emphasize the client's freedom of choice and potential for meaningful change
- Articulate expectations and goals of therapy (how goals are to be reached)

Developing the alliance can be undertaken through reflective listening, demonstrating respect, honesty, and openness; eliciting trust and confidence; and applying other principles that emerge from these therapies. The therapist's authentic manner of encountering the client can set the tone for an honest, collaborative therapeutic relationship. Emphasizing freedom of choice and potential for meaningful change may be deepened by a focus on the current decision (however it has been reached) to participate in the opening session. Expectations and goals can be articulated through strategic questions or comments like, "What might be accomplished in treatment that would help you live better" or "You now face the choice of how to participate in your own substance abuse recovery."

Because of time constraints inherent in approaches to brief substance abuse treatment, the early phase of therapy is crucial. Unless the therapist succeeds in engaging the client during the early phase, the treatment is likely to be less effective. "Engaging" includes helping the client increase motivation for other aspects of substance abuse treatment such as group therapy.

Moreover, the patterns of interaction established during the early phase tend to persist throughout therapy. The degree of motivation that the client feels after the first session is determined largely by the degree of significance experienced during the initial therapeutic encounter. A negative experience may keep a highly motivated client from coming back, whereas a positive experience may induce a poorly motivated client to recognize the potential for treatment to be helpful.

COMPATIBILITY OF HUMANISTIC AND EXISTENTIAL THERAPIES AND 12-STEP PROGRAMS

Humanistic and existential approaches are consistent with many tenets of 12-Step programs. For example, existential and humanistic therapists would embrace the significance stressed by the "serenity prayer" to *accept* the things that cannot be changed, the *courage* to change what can be changed, and the *wisdom* to know the difference. However, some would argue against the degree to which Alcoholics Anonymous (AA) identifies the person's "disease" as a central character trait, or the way in which some might interpret the notion of "powerlessness." The principles of existentialism, free choice, and free will may appear incompatible with the 12-Step philosophy of acceptance

and surrender. Yet, such surrender must result from conscious decisions on an individual's part. The AA concept of rigorous self-assessment--of accepting one's own personal limitations and continually choosing and rechoosing to act according to certain principles as a way of living life--are compatible with both existential and humanistic principles.

RESEARCH ORIENTATION

The predominant research strategy or methodology in social science is rooted in the natural science or rational-empirical perspective. Such approaches generally attempt to identify and demonstrate causal relationships by isolating specific variables while controlling for other variables such as personal differences among therapists as well as clients. For example, variations in behavior or outcomes are often quantified, measured, and subjected to statistical procedures in order to isolate the researcher from the data and ensure objectivity. Such strategies are particularly useful for investigating observable phenomena like behavior. Traditional approaches to understanding human experience and meaning, however, have been criticized as an insufficient means to understanding the *lived* reality of human experience. Von Eckartsberg noted, "Science aims for an ideal world of dependent and independent variables in their causal interconnectedness quite abstracted and removed from personal experience of the everyday life-world" (Von Eckartsberg, 1983, p. 199). Similarly, Blewett argued, "The importance of human experience relative to behavior is beyond question for experience extends beyond behavior just as feeling extends beyond the concepts of language" (Blewett, 1969, p.22). Thus, traditional methodological approaches seem ill-suited for understanding the meaning of human experience and the process by which self-understanding manifests itself in the context of a therapeutic relationship.

A humanistic science or qualitative approach, which has its roots in phenomenology, is claimed to be more appropriate for the complexities and nuances of understanding human experience (Giorgi, 1985). The personal and unique construction of meaning, the importance of such subtleties as "the relationship" and the "fit" in therapy, and shifts in internal states of consciousness can be quantified and measured only in the broadest of terms. A more subtle science is required to describe humans and the therapeutic process.

Rather than prediction, control, and replication of results, a humanistic science approach emphasizes understanding and description. Instead of statistical analysis of quantifiable data, it emphasizes narrative descriptions of experience. Qualitative understanding values uniqueness and diversity--the "little stories" (Lyotard, 1984)--as much as generalizability or grander explanations. Generally, this approach assumes that objectivity, such as is presumed in rational empirical methods, is illusory. For the qualitative researcher and the therapist, the goals are the same: openness to the other, active participation, and awareness of one's own subjectivity, rather than illusory objectivity. Intersubjective dialog provides a means of comparing subjective experiences in order to find commonality and divergence as well as to avoid researcher bias.

Because humanistic and existential therapies emphasize psychological process and the therapeutic relationship, alternative research strategies may be required in order to understand the necessary and sufficient conditions for therapeutic change. For example, Carl Rogers "presented a challenge to psychology to design new models of scientific investigation capable of dealing with the inner, subjective experience of the person" (Corey, 1991, p 218). Some 50 years ago, he pioneered the use of verbatim transcripts of counseling sessions and employed audio and videotaping of sessions long before such procedures became standard practice in research and supervision.

TRANSPERSONAL THERAPY

Transpersonal psychology emerged as a "fourth force" in psychology in the late 1960s and has strong roots in humanistic and existential psychologies, Jungian analysis, the East-West dialog, and ancient wisdom traditions. Transpersonal therapy may be thought of as a bridge between psychological and spiritual practice.

A transpersonal approach emphasizes development of the individual beyond, but including, the ego. It acknowledges the human spiritual quest and recognizes the human striving for unity, ultimate truth, and profound freedom. It cultivates intuitive ways of knowing that complement rational and sensory modes. This approach also recognizes the potential for growth inherent in "peak" experiences and other shifts in consciousness. Although grounded in psychological theory, transpersonal practitioners also tend to incorporate perspectives from ancient wisdom traditions.

The practice of transpersonal therapy is defined more by its orientation and scope rather than by a particular set of techniques or methods (Boorstein, 1980). Wittine suggests five postulates for a transpersonal psychotherapy (Wittine, 1989):

Transpersonal psychotherapy is an approach to healing and growth that recognizes the centrality of the self in the therapeutic process.

1. Transpersonal psychotherapy values wholeness of being and self-realization on all levels of the spectrum of identity (i.e., egoic, existential, transpersonal).
2. Transpersonal psychotherapy is a process of awakening from a limited personal identity to expanded universal knowledge of self.
3. Transpersonal psychotherapy makes use of the healing restorative nature of subjective awareness and intuition in the process of awakening.
4. In transpersonal psychotherapy, the therapeutic relationship is a vehicle for the process of awakening in both client and therapist.

Integrating insights and practices in everyday life is the goal of every therapy. Bringing the transpersonal dimension to the forefront may involve the following:

- Exploration of "inner voices" including those of a higher self that provides guidance for growth of the individual (Rowan, 1993)
- Refinement of intuition or nonrational knowing
- Practice of creativity in "formal" (art) or informal (personal relationships) encounters
- Meditation
- Loving service
- Cultivation of mindfulness

USE OF DREAMS AND IMAGER

These techniques may be taught and supported explicitly in the therapy session. At times, a therapist may directly cultivate shifts in consciousness (e.g., through meditation [Weil, 1972], or imaginal work [Johnson, 1987]), providing immediate insight and inspiration that may not be available through more conventional means (Hart, 1998). This may provide clients with a skill they can practice on their own; initiating such activity represents a potential for brief intervention.

Transpersonal therapy recognizes the need for basic psychological development to be integrated with spiritual growth (Nelson, 1994). Without such integration there is danger of "spiritual bypassing," where issues of basic psychological functioning are avoided in the name of spiritual development. In other words, the basic psychological work should be undertaken first.

Substance abuse disorders may be seen broadly as an attempt to fill a spiritual void. They may also be understood as a means for the ego to defend itself against a natural drive for growth. If growth were to occur, the ego might find its dominance relinquished. Addiction, like spirituality, also raises questions of surrender (May, 1991): for example, to what and to whom do we surrender? In a culture and a psychology that are dominated by issues of rational ego control, what is the role of constructive surrender (regularly described in spiritual traditions)? How does constructive surrender become destructive and distorted in substance dependency? In addition, substance abuse may be understood as a means for shifting out of a normal waking state of consciousness. This may be an attempt to fulfill an innate drive (Weil, 1972) for nonrational consciousness.

RESPONSE TO THE CASE STUDY

As the existentialists remind us, there is nothing like death to rivet our attention. A glimpse of death—for example, seeing the aftermath of a serious car crash—reminds the witness of how valuable life is, bringing up other issues as well. Sandra is now confronted with death due to AIDS. This opportunity to face death and life squarely provides a chance to reconsider and reprioritize her life. In fact, it could be argued that the best catalyst to brief therapy may be a death sentence precisely because it has the potential to wake up an individual. In many respects, helping the client wake from habitual, mechanical routines that are often based on ego protection and move toward an appreciation that the individual is not bound to or defined by a limited ego, is the goal of transpersonal therapy. This can be seen as a transformation of identity.

Many inspiring instances of people facing death, including death through AIDS, have shown that emergent spirituality can change the quality and direction of existence very quickly. For treatment, the basic sharing of these experiences with a group of others in a similar predicament often quickly moves the client beyond isolation and a sense of self-separateness to connect intimately with others who understand her situation. This community may not only bring comfort and support but also a deep sense of communion with humanity. In this instance, breaking through the shell of isolation may enable Sandra to begin to make new connections with her family and with herself. A sense of interconnection, a central postulate and experience in the wisdom traditions, may replace her perceived isolation.

Sandra may use this opportunity of facing possible death to begin to encounter and let go of such feelings as guilt, shame, disappointment, and anger that have kept her life less satisfying than it could be. Accessing the imaginal through art or dreams, for example, can provide a clear and symbolic expression of unresolved issues. The use of rituals or rites-of-passage inspired by the wisdom traditions can provide some catalyst for shifting her consciousness through forgiveness and release.

The therapist may engage in a wide variety of methods (e.g., imagery, art, or dream work, meditation, rituals), but the heart of the work is in the simple and humane spirituality that is embodied by the therapist's loving presence along with the therapist's openness to explore the full range of human experience directly. For Sandra, this experience may be seen as an opportunity for practicing love

and forgiveness, moving out from behind rigid self-separateness, facing fears, and transforming her self-definition.

Unlike most forms of psychotherapy that concentrate on improving mental health, transpersonal therapy takes a more holistic approach, addressing mental, physical, social, emotional, creative, and intellectual needs, with an emphasis on the role of a healthy spirit in healing. To facilitate healing and growth, transpersonal therapy places great emphasis on honesty, open-mindedness, and self-awareness on the part of the therapist as well as the client.

WHEN IT'S USED

Transpersonal therapy is used to treat anxiety, depression, addictions, phobias, and other mood and behavioral problems. Those who are open to exploring their spiritual side, becoming more spiritually aware, or finding a spiritual path, or who are having trouble finding meaning in their life, may benefit from transpersonal therapy.

What to Expect Transpersonal therapists use meditation, guided visualization, hypnotherapy, dream work, art, music, journaling, mindfulness practices, and other techniques that can help you explore your spiritual self and create meaning in your life. With the therapist's guidance, you will find, build, and expand on your inner strengths and resources to create a more balanced life and a healthier state of mind.

HOW IT WORKS

Transpersonal therapy is a holistic healing intervention that evolved from the humanistic work of American psychologist Abraham Maslow in the 1960s. It integrates traditional spiritual rituals into modern psychology and emphasizes positive influences and role models rather than concentrating on negative experiences. This intervention is based on the idea that humans are more than mind and body but are also composed of intangible, or transcendent, factors that make up the whole person. Just as your mind and body sometimes require treatment, your spirituality and other intangible aspects of yourself often require healing of a sort.

A transpersonal therapist may draw from a variety of different religions and spiritual practices for tools and methods that can help you explore various levels of consciousness and use your spirituality to guide you through troubled times.

WHAT TO LOOK FOR IN A TRANSPERSONAL THERAPIST

Look for an experienced licensed or certified counselor, psychotherapist, or other mental health professional with additional training in holistic forms of healing and one or more spiritual pathways. In addition to these credentials, it is important to find a therapist with whom you feel comfortable working.

COGNITIVE REVOLUTION IN PSYCHOLOGY BEHAVIORISM AND THE COGNITIVE REVOLUTION

Behaviorism's emphasis on objectivity and focus on external behavior had pulled psychologists' attention away from the mind for a prolonged period of time. The early work of the humanistic psychologists redirected attention to the individual human as a whole, and as a conscious and self-aware being. By the 1950s, new disciplinary perspectives in linguistics, neuroscience, and computer

science were emerging, and these areas revived interest in the mind as a focus of scientific inquiry. This particular perspective has come to be known as the cognitive revolution (Miller, 2003). By 1967, Ulric Neisser published the first textbook entitled *Cognitive Psychology*, which served as a core text in cognitive psychology courses around the country (Thorne & Henley, 2005).

Although no one person is entirely responsible for starting the cognitive revolution, Noam Chomsky was very influential in the early days of this movement. Chomsky (1928–), an American linguist, was dissatisfied with the influence that behaviorism had had on psychology. He believed that psychology's focus on behavior was short-sighted and that the field had to re-incorporate mental functioning into its purview if it were to offer any meaningful contributions to understanding behavior (Miller, 2003).

European psychology had never really been as influenced by behaviorism as had American psychology; and thus, the cognitive revolution helped reestablish lines of communication between European psychologists and their American counterparts.

Furthermore, psychologists began to cooperate with scientists in other fields, like anthropology, linguistics, computer science, and neuroscience, among others. This interdisciplinary approach often was referred to as the cognitive sciences, and the influence and prominence of this particular perspective resonates in modern-day psychology (Miller, 2003).

COGNITIVE PSYCHOLOGY

Cognitive psychology is radically different from previous psychological approaches in that it is characterized by *both* of the following:

1. It accepts the use of the scientific method and generally rejects introspection as a valid method of investigation, unlike phenomenological methods such as Freudian psychoanalysis.
2. It explicitly acknowledges the existence of internal mental states (such as belief, desire, and motivation), unlike behaviorist psychology.

Cognitive theory contends that solutions to problems take the form of algorithms, heuristics, or insights. Major areas of research in cognitive psychology include perception, memory, categorization, knowledge representation, numerical cognition, language, and thinking.

MULTICULTURAL PSYCHOLOGY

Culture has important impacts on individuals and social psychology, yet the effects of culture on psychology are under-studied. There is a risk that psychological theories and data derived from white, American settings could be assumed to apply to individuals and social groups from other cultures and this is unlikely to be true (Betancourt & López, 1993). One weakness in the field of cross-cultural psychology is that in looking for differences in psychological attributes across cultures, there remains a need to go beyond simple descriptive statistics (Betancourt & López, 1993). In this sense, it has remained a descriptive science, rather than one seeking to determine cause and effect. For example, a study of characteristics of individuals seeking treatment for a binge eating disorder in Hispanic American, African American, and Caucasian American individuals found significant differences between groups (Franko et al., 2012). The study concluded that results from studying any one of the groups could not be extended to the other groups, and yet potential causes of the differences were not measured.

This history of multicultural psychology in the United States is a long one. The role of African American psychologists in researching the cultural differences between African American individual and social psychology is but one example. In 1920, Cecil Sumner was the first African American to receive a PhD in psychology in the United States. Sumner established a psychology degree program at Howard University, leading to the education of a new generation of African American psychologists (Black, Spence, and Omari, 2004). Much of the work of early African American psychologists (and a general focus of much work in first half of the 20th century in psychology in the United States) was dedicated to testing and intelligence testing in particular (Black et al., 2004). That emphasis has continued, particularly because of the importance of testing in determining opportunities for children, but other areas of exploration in African-American psychology research include learning style, sense of community and belonging, and spiritualism (Black et al., 2004).

The American Psychological Association has several ethnically based organizations for professional psychologists that facilitate interactions among members. Many psychologists who identify with specific ethnic groups or cultures are most interested in studying the psychology of their communities. These organizations play an important role in supporting research and treatment in the communities they serve and are building a more comprehensive understanding of the psychological impact that race, ethnicity, and systems of oppression have upon individuals and communities.

SUMMARY OF THE HISTORY OF PSYCHOLOGY

Before the time of Wundt and James, questions about the mind were considered by philosophers. However, both Wundt and James helped create psychology as a distinct scientific discipline. Wundt was a *structuralist*, which meant he believed that our cognitive experience was best understood by breaking that experience into its component parts. He thought this was best accomplished by introspection.

William James was the first American psychologist, and he was a proponent of *functionalism*. This particular perspective focused on how mental activities served as adaptive responses to an organism's environment. Like Wundt, James also relied on introspection; however, his research approach also incorporated more objective measures as well. Sigmund Freud believed that understanding the unconscious mind was absolutely critical to understand conscious behavior. This was especially true for individuals that he saw who suffered from various hysterias and neuroses. Freud relied on dream analysis, slips of the tongue, and free association as means to access the unconscious. Psychoanalytic theory remained a dominant force in clinical psychology for several decades.

Gestalt psychology was very influential in Europe. Gestalt psychology takes a holistic view of an individual and his experiences. As the Nazis came to power in Germany, Wertheimer, Koffka, and Köhler immigrated to the United States. Although they left their laboratories and their research behind, they did introduce America to Gestalt ideas. Some of the principles of Gestalt psychology are still very influential in the study of sensation and perception.

One of the most influential schools of thought within psychology's history was behaviorism. Behaviorism focused on making psychology an objective science by studying overt behavior and deemphasizing the importance of unobservable mental processes. John Watson is often considered the father of behaviorism, and B. F. Skinner's contributions to our understanding of principles of operant conditioning cannot be underestimated.

As behaviorism and psychoanalytic theory took hold of so many aspects of psychology, some began to become dissatisfied with psychology's picture of human nature. Thus, a humanistic movement within psychology began to take hold. Humanism focuses on the potential of all people for good.

Both Maslow and Rogers were influential in shaping humanistic psychology.

During the 1950s, the landscape of psychology began to change. A science of behavior began to shift back to its roots of focus on mental processes. The emergence of neuroscience and computer science aided this transition. Ultimately, the cognitive revolution took hold, and people came to realize that cognition was crucial to a true appreciation and understanding of behavior.

WHAT IS FOUR FOUNDING PATHS OF ACADEMIC PSYCHOLOGY - WUNDT, FREUD, JAMES, DILTHEY. ISSUES: CRISIS IN PSYCHOLOGY DUE TO STRICT ADHERENCE TO EXPERIMENTAL-ANALYTICAL PARADIGM (LOGICAL EMPIRICISM). INDIC INFLUENCES ON MODERN PSYCHOLOGY ?

FOUR FOUNDING PATHS OF ACADEMIC PSYCHOLOGY - WUNDT, FREUD, JAMES, DILTHEY. ISSUES: CRISIS IN PSYCHOLOGY DUE TO STRICT ADHERENCE TO EXPERIMENTAL-ANALYTICAL PARADIGM (LOGICAL EMPIRICISM). INDIC INFLUENCES ON MODERN PSYCHOLOGY

Four founding paths of academic psychology - Wundt, Freud, James, Dilthey

WILHELM WUNDT PSYCHOLOGY

Wilhelm Wundt opened the Institute for Experimental Psychology at the University of Leipzig in Germany in 1879. This was the first laboratory dedicated to psychology, and its opening is usually thought of as the beginning of modern psychology. Indeed, Wundt is often regarded as the father of psychology. Wundt was important because he separated psychology from philosophy by analyzing the workings of the mind in a more structured way, with the emphasis being on objective measurement and control.

This laboratory became a focus for those with a serious interest in psychology, first for German philosophers and psychology students, then for American and British students as well. All subsequent psychological laboratories were closely modeled in their early years on the Wundt model.

Wundt's background was in physiology, and this was reflected in the topics with which the Institute was concerned, such as the study of reaction times and sensory processes and attention. For example, participants would be exposed to a standard stimulus (e.g. a light or the sound of a metronome) and asked to report their sensations.

Wundt's aim was to record thoughts and sensations, and to analyze them into their constituent elements, in much the same way as a chemist analyzes chemical compounds, in order to get at the underlying structure. The school of psychology founded by Wundt is known as voluntarism, the process of organizing the mind.

During his academic career Wundt trained 186 graduate students (116 in psychology). This is significant as it helped disseminate his work. Indeed, parts of Wundt's theory were developed and promoted by his one-time student, Edward Titchener, who described his system as Structuralism, or the analysis of the basic elements that constitute the mind. Wundt wanted to study the structure of the human mind (using introspection). Wundt believed in reductionism. That is, he believed consciousness could be broken down (or reduced) to its basic elements without sacrificing any of the properties of the whole.

Wundt argued that conscious mental states could be scientifically studied using introspection. Wundt's introspection was not a causal affair, but a highly practiced form of self-examination. He

trained psychology students to make observations that were biased by personal interpretation or previous experience, and used the results to develop a theory of conscious thought.

Highly trained assistants would be given a stimulus such as a ticking metronome and would reflect on the experience. They would report what the stimulus made them think and feel. The same stimulus, physical surroundings and instructions were given to each person. Wundt's method of introspection did not remain a fundamental tool of psychological experimentation past the early 1920's. His greatest contribution was to show that psychology could be a valid experimental science.

Therefore, one way Wundt contributed to the development of psychology was to do his research in carefully controlled conditions, i.e. experimental methods. This encouraged other researchers such as the behaviorists to follow the same experimental approach and be more scientific. However, today psychologists (e.g. Skinner) argue that introspection was not really scientific even if the methods used to introspect were. Skinner claims the results of introspection are subjective and cannot be verified because only observable behavior can be objectively measured.

Wundt concentrated on three areas of mental functioning; thoughts, images and feelings. Some of these areas are still studied in cognitive psychology today. This means that the study of perceptual processes can be traced back to Wundt. Wundt's work stimulated interest in cognitive psychology.

On the basis of his work, and the influence it had on psychologists who were to follow him, Wundt can be regarded as the founder of experimental psychology, so securing his place in the history of psychology. At the same time, Wundt himself believed that the experimental approach was limited in scope, and that other methods would be necessary if all aspects of human psychology were to be investigated.

FREUD PSYCHOLOGY

Sigmund Freud (1856 to 1939) was the founding father of psychoanalysis, a method for treating mental illness and also a theory which explains human behavior.

Freud believed that events in our childhood have a great influence on our adult lives, shaping our personality. For example, anxiety originating from traumatic experiences in a person's past is hidden from consciousness, and may cause problems during adulthood (in the form of neuroses).

Thus, when we explain our behavior to ourselves or others (conscious mental activity), we rarely give a true account of our motivation. This is not because we are deliberately lying. While human beings are great deceivers of others; they are even more adept at self-deception.

Freud's life work was dominated by his attempts to find ways of penetrating this often subtle and elaborate camouflage that obscures the hidden structure and processes of personality.

His lexicon has become embedded within the vocabulary of Western society. Words he introduced through his theories are now used by everyday people, such as anal (personality), libido, denial, repression, cathartic, Freudian slip, and neurotic.

THE CASE OF ANNA O

The case of Anna O (real name Bertha Pappenheim) marked a turning point in the career of a young Viennese neuropathologist by the name of Sigmund Freud. It even went on to influence the future direction of psychology as a whole. Anna O. suffered from hysteria, a condition in which the patient exhibits physical symptoms (e.g., paralysis, convulsions, hallucinations, loss of speech) without an

apparent physical cause. Her doctor (and Freud's teacher) Josef Breuer succeeded in treating Anna by helping her to recall forgotten memories of traumatic events.

During discussions with her, it became apparent that she had developed a fear of drinking when a dog she hated drank from her glass. Her other symptoms originated when caring for her sick father. She would not express her anxiety for her father's illness but did express it later, during psychoanalysis. As soon as she had the opportunity to make these unconscious thoughts conscious her paralysis disappeared.

Breuer discussed the case with his friend Freud. Out of these discussions came the germ of an idea that Freud was to pursue for the rest of his life. In *Studies in Hysteria* (1895) Freud proposed that physical symptoms are often the surface manifestations of deeply repressed conflicts.

However, Freud was not just advancing an explanation of a particular illness. Implicitly he was proposing a revolutionary new theory of the human psyche itself. This theory emerged "bit by bit" as a result of Freud's clinical investigations, and it led him to propose that there were at least three levels of the mind.

THE UNCONSCIOUS MIND

Freud (1900, 1905) developed a topographical model of the mind, whereby he described the features of the mind's structure and function. Freud used the analogy of an iceberg to describe the three levels of the mind.

On the surface is consciousness, which consists of those thoughts that are the focus of our attention now, and this is seen as the tip of the iceberg. The preconscious consists of all which can be retrieved from memory.

The third and most significant region is the unconscious. Here lie the processes that are the real cause of most behavior. Like an iceberg, the most important part of the mind is the part you cannot see.

The unconscious mind acts as a repository, a 'cauldron' of primitive wishes and impulse kept at bay and mediated by the preconscious area.

For example, Freud (1915) found that some events and desires were often too frightening or painful for his patients to acknowledge, and believed such information was locked away in the unconscious mind. This can happen through the process of repression.

Sigmund Freud emphasized the importance of the unconscious mind, and a primary assumption of Freudian theory is that the unconscious mind governs behavior to a greater degree than people suspect. Indeed, the goal of psychoanalysis is to make the unconscious conscious.

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PSYCHOSEXUAL STAGES

In the highly repressive "Victorian" society in which Freud lived and worked women, in particular, were forced to repress their sexual needs. In many cases, the result was some form of neurotic illness. Freud sought to understand the nature and variety of these illnesses by retracing the sexual history of his patients. This was not primarily an investigation of sexual experiences as such. Far more important were the patient's wishes and desires, their experience of love hate, shame, guilt and fear – and how they handled these powerful emotions. It was this that led to the most controversial part of Freud's work – his theory of psychosexual development and the Oedipus complex. Freud believed that children are born with a libido – a sexual (pleasure) urge. There are a number of stages of childhood, during which the child seeks pleasure from a different 'object.'

DREAM ANALYSIS

Freud (1900) considered dreams to be the *royal road to the unconscious* as it is in dreams that the ego's defenses are lowered so that some of the repressed material comes through to awareness, albeit in distorted form. Dreams perform important functions for the unconscious mind and serve as valuable clues to how the unconscious mind operates.

On 24 July 1895, Freud had his own dream that was to form the basis of his theory. He had been worried about a patient, Irma, who was not doing as well in treatment as he had hoped. Freud, in fact, blamed himself for this, and was feeling guilty.

JAMES PSYCHOLOGY

William James was a psychologist and philosopher who had a major influence on the development of psychology in the United States. Among his many accomplishments, he was the first to teach a psychology course in the U.S. and is often referred to as the father of American psychology. James was also known for contributing to functionalism, one of the earliest schools of thought in psychology. His book *The Principles of Psychology* is considered one of the most classic and influential texts in psychology's history. He was also the brother of the noted writer Henry James and diarist Alice James.

"The art of being wise is the art of knowing what to overlook," William James once wrote.¹ Learn more about his life, career, ideas, and contributions to psychology in this brief biography.

He was often called the father of American psychology and is best known for:

- Functionalism
- James Lange Theory of Emotion
- Pragmatism William James' Early Life

William James was born into an affluent family. His father was deeply interested in philosophy and theology and strove to provide his children with an enriched education. The James children traveled to Europe frequently, attended the best possible schools, and were immersed in culture and art, which apparently paid off - William James went on to become one of the most important figures in

psychology while his brother Henry James became one of the most acclaimed American novelists.

Henry James was the author of several acclaimed works, including *The Portrait of a Lady* and *The Ambassadors*. Early in school, William James expressed an interest in becoming a painter. While Henry James Sr. was known as an unusually permissive and liberal father, he wanted William to study science or philosophy. Only after William persisted in his interest did Henry permit his son to formally study painting. After studying painting with the famed artist William Morris Hunt for more than a year, James abandoned his dream of being a painter and enrolled at Harvard to study chemistry. While two of James' brothers enlisted to serve in the American Civil War, William and Henry did not due to health problems.

TIMELINE OF EVENTS

- Born January 11, 1842 in New York City
- 1869 - Received M.D. from Harvard
- 1875 - Began teaching psychology at Harvard
- 1882 - Death of William's father, Henry James Sr.
- 1890 - Published *The Principles of Psychology*
- 1892 - Turned lab over to Hugo Munsterberg
- 1897 - Published *Will to Believe and Other Essays*
- 1907 - Published *Pragmatism* and officially resigned from Harvard
- Died August 26, 1910, at the age of 68

THE CAREER OF WILLIAM JAMES

As the family money began to dwindle, William realized he would need to support himself and switched to Harvard Medical School. Unhappy with medicine as well, he left on an expedition with naturalist Louis Agassiz, although the experience was not a happy one.

"I was, body and soul, in a more indescribably hopeless, homeless, and friendless state than I ever want to be in again," he later wrote. Developing health problems and severe depression, James spent the next two years in France and Germany. This period played an important role in shifting his interest in psychology and philosophy.

After graduating from Harvard Medical School in 1869, James continued to sink into depression. Following a period of inactivity, the president of Harvard offered James a position as an instructor of comparative physiology in 1872. Three years later, James began teaching psychology courses. While he famously commented that "the first lecture on psychology ever heard being the first I ever gave," James went on to teach at Harvard until 1907. In addition to his other important contributions, James helped shape the course of psychology by teaching the many students that passed through his classroom.

James also founded one of the first psychology laboratories in the United States. His classic textbook *The Principles of Psychology* (1890) was widely acclaimed, but some were critical of James' personal, literary tone. "It is literature," psychologist Wilhelm Wundt famously commented, "it is beautiful, but it is not psychology."³ Two years later, James published a condensed version of the work titled *Psychology: The Briefer Course*. The two books were widely used by students of psychology and were known to most as "the James" and "the Jimmy" respectively.⁴

JAMES WILLIAMS' THEORIES

James' theoretical contributions to psychology include the following:

- **Functionalism:** James opposed the structuralist focus on introspection and breaking down mental events to the smallest elements. Instead, James focused on the wholeness of an event, taking into the impact of the environment on behavior.⁵
- **James-Lange Theory of Emotion:** The James-Lange theory of emotion proposes that an event triggers a physiological reaction, which we then interpret.⁶ According to this theory, emotions are caused by our interpretations of these physiological reactions. Both James and the Danish physiologist Carl Lange independently proposed the theory.
- **Pragmatism:** James wrote extensively on the concept of pragmatism. According to pragmatism, the truth of an idea can never be proven.⁷ James proposed we instead focus on what he called the "cash value," or usefulness, of an idea.

WILLIAM JAMES' INFLUENCE ON PSYCHOLOGY

In addition to his enormous influence, many of James' students went on to have prosperous and influential careers in psychology. Some of James' students included Mary Whiton Calkins, Edward Thorndike, and G. Stanley Hall.

DILTHEY PSYCHOLOGY

If one wants to see a kind of psychology which Dilthey would regard as explanative and based on incorrect assumptions about the nature of the human *psyché*, I suggest Jerry Fodor's "Methodological Solipsism Considered as a Research Strategy in Cognitive Psychology", in Dreyfus, Hubert, and Hall, Harrison, (eds.), *Husserl, Intentionality and Cognitive Science*, Cambridge, Mass.: M.I.T. Press, 1982, pp.277-303. This article illustrates very well the kind of faculty psychology which Dilthey dislikes. It also well illustrates the 'synthetic' approach which Dilthey attributes to explanative psychology, namely, the identification of elementary psychological entities, in Fodor's case, mental representations and modules for processing the same and then the synthesis of these elements and modules into a merely causally interrelated whole which is supposed to provide a model of such and such a psychological process, e.g., cognition, perception and the like.

1. For two instructive accounts of naturalism, see the articles on naturalism in *The Blackwell Companion to Metaphysics* and the *Encyclopaedia of Philosophy*.
2. In these notes, I occasionally refer to Dilthey's text simply as *Ideas*.

DILTHEY'S IDEAS CONCERNING A DESCRIPTIVE AND ANALYTIC PSYCHOLOGY—CHAPTERS ONE AND TWO

It is common to divide Dilthey's views on the need for, and nature of, a grounding of the so-called human studies into two periods, a 'psychological' one extending through the 1880's up to just before the turn of the century, and a more 'hermeneutic' one from, say, 1900 onwards. This distinction

appears to me to be at best artificial although it is certainly true that around 1900 or slightly before Dilthey did move from talking about the fundamental method and approach of the human studies as descriptively psychological to hermeneutic. This reflects, I think, an appreciation on Dilthey's part that by and large the human studies investigate domains of human reality which, due to differences in culture and tradition, or perhaps the passage of time, are no longer readily accessible. Thus, it is wrong to assume that the kind of activity which the student humanist engages in when studying different or past cultures is just an extension to new domains of an ability to understand others, their actions and their works which we exercise in everyday life.

Because wherever there is distance and difference, human reality is not effortlessly intelligible, the understanding displayed by the human studies is not just a reflective, more explicit version of what we do in unproblematic everyday contexts. A genuinely *hermeneutic* effort is needed; the people, the cultures or the acts one is studying are so to speak broken texts whose meaning is not directly accessible; it must rather be discerned in the vehicles which express them in a manner not strictly comparable to how we effortlessly understand one another in everyday contexts.

Talk of the method and approach of the human studies as descriptive obscures this difference entirely. At the same time, it would be wrong to exaggerate the difference between Dilthey's so-called 'psychological' and his 'hermeneutic' periods. Much is preserved, in particular, his central terminology of the 'psychological' or 'psychical nexus' (*psychischer Zusammenhang*) and the holistic account of socio-cultural reality that goes with this term of art. In the next set of notes, I will start unpacking some of the things Dilthey says in the first two chapters of his "Ideas concerning a Descriptive and Analytic Psychology." This text was written in 1894 and thus belongs to his 'psychological' period. The first chapter is entitled "The Task of a Psychological Grounding of the Human Studies", the second, "The Distinction between Explanative and Descriptive Psychology". In particular, I want to concentrate on pp.138-150 of Chapter I and the whole of chapter II, which is quite short, namely, pp.154-158. In order, however, to understand properly what Dilthey is on about in these opening chapters, a few rough observations on the history of psychology are necessary. Very roughly, one can distinguish two strands and attitudes within contemporary psychology. On the one side there is, to appropriate a distinction from William James, a tender-minded kind of psychology: this is the kind of psychology we associate with the names of Freud, Jung, Binswanger, Klein, Fromm, R.D.

Laing and numerous others. It is often clinically and therapeutically oriented and in its theoretical accounts of its clinical and therapeutic methods it often, if not always and not always unambiguously, spurns any suggestion that it is a *natural* science at all, much less a natural science which could take physics as its model. On the other side there is the tough-minded kind of psychology, e.g., cognitive psychology, some brands of developmental psychology, the psychology of perception, and so on. This kind of psychology very often bumptiously proclaims its status as a natural science. Some prominent recent and contemporary representatives are Karmiloff-Smith, Smolenksy, Rumelhart, McClelland and many others.

We need to keep these two strands strictly apart in attempting to understand Dilthey. Although it has many roots and sources in the tradition of Romantic and philosophical psychology which was eventually eclipsed by the hard-nosed variety, the tender-minded variety of psychology strand is actually the younger. For it arose out of traditions of opposition to the general conceptions underlying the natural scientifically oriented brand. This latter brand in fact arose during Dilthey's life, and it is this brand of psychology which Dilthey has in mind when he speaks of 'erklärende Psychologie', i.e., 'explanatory' or 'explanative' psychology.

In Dilthey's time, psychology in this natural scientifically oriented sense was just starting to assert itself. One of the first people to articulate the idea of a natural scientifically oriented 'explanatory' psychology was Kant's successor at Königsberg, Johann Friedrich Herbart (1776-1841).

Although he insisted that in psychology one still needed a number of indispensable metaphysical presuppositions, in particular, in order to account for the unity of psychological phenomena and the particular way they change, he insisted that one could have a 'physics of the mind' („Physik des Geistes“) which utilised mathematical and quantitative techniques, thereby enabling psychology to constitute itself as a genuine science. Herbart's followers, e.g., Waitz (1821-1864) and Drobisch (1802-1896), in these notes I was unable to discuss the third fundamental characteristic, namely, the human propensity to regard certain kinds of action as not just wise or unwise, but morally right or wrong.

elaborated on these ideas unlike by the mid-century numerous thinkers were claiming that psychology had to be done as an independent, empirical discipline, without any debt to, or baggage from, traditional philosophy and metaphysics. Mid-nineteenth century scientists, doctors and philosophers like Wundt (1832- 1920), Helmholtz and Fechner (1801-1887) set about establishing a psychology whose model was physics and which conceived its object of study as neither made of immaterial substance, nor identical with the human soul. Psychology thus conceived was to be neutral about these kinds of issue, although of course the more it succeeded in cognising psychological phenomena without having to talk about immaterial substances or of souls, the less plausible it made these doctrines. (Something similar applies in the case of physics and God.)

Dilthey identifies a number of contemporary traditions and individual thinkers as the first advocates of this idea of an independent, natural scientifically oriented psychology which takes physics as its model, hence similarly aims to exploit experimental and mathematical techniques. In this connection, he mentions.

- 1) the tradition of associationist psychology, which stems from the British empiricists Locke, Berkeley and Hume;
- 2) Herbart (1776-1841), who has already been mentioned;
- 3) Friedrich Albert Lange (1828-1875), the early Neokantian author of the very influential book *Geschichte des Materialismus (The History of Materialism)*; and
- 4) the English psychologist Herbert Spencer and Taine. A natural scientifically oriented psychology conceives its task as that of identifying the constituent elements, causal laws and mechanisms of psychological phenomena, just as physics identifies constituent elements, causal laws and mechanisms of physical phenomena.

Identification of the fundamental elements of things and of how these fundamental elements interact causally to produce certain kinds of phenomenon is what Dilthey means by the *explanation* of such phenomena. A science which aims to explain in this sense is precisely an explanatory or explanative science. As Dilthey puts it, "(u)nter einer erklärenden Wissenschaft ist jede Unterordnung eines Erscheinungsgebietes unter einen Kausalzusammenhang vermittelt einer begrenzten Zahl von eindeutig bestimmten Elementen (d.h. Bestandteilen de Zusammenhangs) zu verstehen." (S.139) It should be noted that while such explanative science and the explanations it comes up with may very well and perhaps even ideally take mathematical form, this is not necessary. Many natural scientific explanations, from contemporary explanations of the origin of the universe to

genetic explanations of hereditary disease are strictly qualitative, even though they may involve much calculation around the edges.

Dilthey points out that explanative psychology in this sense works essentially with hypotheses. Insofar as to form a hypothesis is to formulate a general proposition hopefully valid for all cases on the basis of a limited number of cases, there is nothing to object to this. But, says Dilthey, the formulation of hypotheses has acquired a more definite, specific sense in natural scientific contexts, and thus in all disciplines which, like explanative psychology, seek to model themselves on natural sciences. According to Dilthey, we do not experience the causal interconnectedness of things, but only their temporal succession. When a flame causes water to boil, I see the flame burning in close proximity to the kettle, and I also see the water boiling in the kettle. I do not, however, see in addition to these two events any further event of the flame's causing the water to boil. In order to establish that a causal connection exists between these two events, I must test out the *hypothesis* that such a connection exists by putting kettles on flames a number of times. I will then have a highly probable degree of certainty that a causal connection exists. (S.140-141).

But, ask Dilthey, can this approach be transferred across to our psychological life? (S.142) That the representatives of an explanative psychology do intend such a transferral, and that there are a number of points at which this idea is problematic, are things Dilthey wants to show in the course of this work. We can, or as Dilthey seems to suggest, get a better preliminary understanding of what it means thus to conceive psychology on the model of natural science, and where this idea goes wrong by appreciating the following: in contemporary explanative psychology we do indeed find, as a matter of fact, *lots* of hypotheses. Unfortunately, this is an embarrassment of riches: "Ein Kampf aller gegen alle tobt auf ihrem Gebiete nicht minder heftig als auf dem Felde der Metaphysik. Noch ist nirgends am fernsten Horizonte etwas sichtbar, was diesen Kampf zu entscheiden die Kraft haben möchte." (S.142) Dilthey seems to be voicing about contemporary explanative psychology much the same sentiment that Kant voiced about traditional metaphysics: "... (s)o far ... are the students of metaphysics from exhibiting any kind of unanimity in their contentions, that metaphysics has rather to be regarded as a battle-ground ... in which no participant has ever yet succeeded in gaining even so much as an inch of territory, not at least in such manner as to secure him in its permanent possession." Given the subsequent development of explanative psychology, indeed, of any kind of psychology, Dilthey is making a quite valid point. Since the rise of explanative and experimental psychology in the late nineteenth century, there have been a succession of attempts to establish psychology on the same kind of sure footing which physics, in particular through Sir Isaac Newton, was able to establish itself.

Newton's mechanics provided a research framework for future scientists which lasted approximately 250 years. And in a certain sense Newton's work has not been superseded, even today: most standard engineering and technological work utilises classical mechanics, indeed, classical mechanics are often used in the design of experimental apparatus and instruments used in theoretical physics of a quite high-powered kind. Finally, many people regard Newton's theory as just a special case of which Einstein provided the more general theory.

Nothing like this has occurred in psychology. Initially, in the late nineteenth century there was associationist psychology which derived from classical empiricism and was often highly introspectionist in nature. That is, it was quite happy to maintain that psychological data and even laws could be discovered by the psychologist's observing how he or she experienced things. Such observation of one's own mental life was known as 'inner perception', something of which Dilthey himself makes

much mention.

But in the late nineteenth century, psychologists began calling introspection into question, denying that it provided the kind of empirical data a natural scientifically oriented psychology could profitably use. The point was not, or not just, that the observations one made about what went on in one's own breast were no more reliable and infallible than ordinary observation of external things. The point was rather that no matter how reliable or infallible such data were, they were of limited use in experimental, explanative psychology.

The aim of such a psychology is to establish the various mechanisms and lawful connections whereby physical things out there cause psychological phenomena 'in the mind'; and conversely, things 'in the mind' cause things to happen in the physical world. About these mechanisms and laws very little knowledge is gained by introspection. What is needed is experimentation from a third-person, non-introspectionist point of view—experimentation involving diverse test subjects which would seek to correlate their introspective reports of their psychological states and events with observations made by the experimenter of various physical and physiological facts, events and changes.

Eventually, this hostility to introspection went so far that one did not merely deny that it could establish anything of scientific interest. One increasingly began to declare that the phenomena allegedly introspected did not really exist. At least from the standpoint of the natural scientifically oriented psychologist one could regard the entities talked about in introspective reports, e.g., colour sensations, feelings, perceptions, beliefs, desires, intentions and the like as entities postulated by a bad or false theory, and thus with precisely the same status as witches and fairies. This hostility to what had traditionally been understood by psychological phenomena gather pace during the late nineteenth century, culminating in the first decades of the twentieth century in the movement known as behaviourism. (The canonical text of this movement was J.B. Watson's book *Behaviourism*, which appeared in 1912.) This was a kind of experimental, natural scientific psychology which tried to do without any talk of mental or psychological entities, except in a behavioural sense. If beliefs, desires, intentions and the like existed at all, then only as dispositions to behave: to say that I believe that it is raining is simply to say that I will tend to do such things as put on my raincoat, open up an umbrella, or put my newspaper over my head, etc., before I go outside.

Although behaviorism received some competition from the so-called Gestalt psychologists, it was the dominant school of psychology at least in Anglo-american countries for many decades. But by the fifties it was quite clear to most people that behaviourism was not the promised equivalent to Newtonian mechanics, that foundation which would allow a scientific psychology to march relentlessly forward for hundreds of years. So people began looking for a completely new approach. By the late fifties, if not earlier, psychologists and philosophers of psychology believed they have found the new approach. They began to re-invent the mental—but only because the model of the computer suggested how one could acknowledge the mental and important elements in a scientific psychology without lapsing back into unscientific introspectionism.

Thinking was like the running of a computer programme, beliefs like the stored information used by the programme and desires the various objectives the programme served. The task of scientific psychology was thus to come up with models of the programmes we humans run when thinking and acting. Psychology thus conceived is known as functionalism, or more accurately, as computationalism, which is one way of spelling out the idea that beliefs, desires, perceptions are mental

functions, i.e., neuro- physiological configurations with certain properties to change, and be changed by, other such configurations. (Analogously, when a computer is running a certain programme, its hardware is configured to respond and interact in certain ways.)

Unfortunately, various problems with this conception have arisen. The computationalist attempt to spell out the general functionalist idea has not delivered the long-awaited foundation for the sure march forward of psychological and in particular, of cognitive science, which is of course the psychology of cognition and perception. Enthusiasm for it is thus waning and now the latest fashion is the idea of neural networks and, more latterly, the idea that the human psyché can be modelled scientifically by conceiving it as a non-linear dynamical system.

So Dilthey is quite right, indeed prescient, in his observation that there is in psychology a situation not unlike that in what I particularly despise, namely, metaphysics. That there is indeed this situation is indeed something of which many natural scientifically oriented psychologists show themselves to be painfully aware. Just like so many economists, many psychologists protest over and over again that what they are doing is 'science'. Contrast this to the much more relaxed attitude of many contemporary physicists, who are rightly quite sure that physics, whatever it is, is a huge success, who thus do not feel any need to defend the status of physics as a science (or anything else).

Dilthey gives his own example of a fundamental hypothesis which he regards as subject to endless, undecidable controversy. This appears to be the standard reductive materialist hypothesis that psychological facts and events are caused in law-like ways by physical and physiological facts and events, and are indeed reducible to these latter. (I take it by speaking of "die Zurückführung aller Bewußtseinserscheinungen auf atomartig vorgestellte Elemente, welche in gesetzlichen Verhältnissen auf einander wirken ..." (S.142-143), Dilthey does intend not merely an epiphenomenalism, but a genuine reductionism.)

Dilthey points out that proponents of explanative psychology like to defend their making of such hypotheses by appeal to the natural sciences, by which Dilthey of course means physics and chemistry (see S.139). But I think he is trying to say that this begs the crucial question of whether psychology may in fact such natural sciences as its model. If the answer to this question is 'Yes', then certainly this characteristic defence is sufficient; one may indeed respond that, as the experience and history of the natural sciences show, we may have every confidence that the *current* controversial character of this hypothesis will, by further work and experiment, be overcome. But until this question has been answered affirmatively one may just as legitimately take the long-standing controversial character of such hypotheses as indicating that something is wrong in one's conception of what psychology is and thus what it may take as its model.

ISSUES: CRISIS IN PSYCHOLOGY DUE TO STRICT ADHERENCE TO EXPERIMENTAL-ANALYTICAL PARADIGM (LOGICAL EMPIRICISM)

This article looks at the main symptoms of the crisis in psychology. The author believes that in addition to the traditional manifestations that have dogged psychology since it emerged as an independent science, there have appeared some new symptoms. The author identifies three fundamental "ruptures": "vertical" ruptures between various schools and trends, "horizontal" ruptures between natural science and humanitarian psychology and "diagonal" ruptures between research (academic) and practical psychology. In the author's opinion, these manifestations of the crisis of psychology have recently been compounded by the crisis of its rationalistic foundations. This situation is

described in terms of the cognitive systems in psychology which include:

- 1) meta-theories;
- 2) paradigms;
- 3) sociodigms and
- 4) metadigms.

PERMANENT CRISIS

One of the key features of the methodological self-consciousness of psychology that has accompanied it since its first steps is a permanent sense of crisis invariably registered since the times of W James (James, 1890; etc.). The following are the commonly noted symptoms of the crisis:

- the disjointed character of the psychological science, a lack of conceptual unity;
- lack of a single universally shared theory;
- the mosaic-like and unsystematic character of psychological knowledge;
- lack of universal criteria of verification and authenticity of knowledge;
- non-cumulative nature of knowledge, with each new psychological trend declaring all the preceding psychology to be a collection of misconceptions and artifacts;
- separation of the whole personality into memory, thought, perception, attention and other mental functions, each leading a strange independent existence;
- various "parallelisms"-psycho-physical, psycho-physiological, psycho-biological and psycho-social - which psychology feels unable to resolve for itself, "puzzles," to borrow T. Kuhn's words (Kuhn, 1962); and others. True, at least three circumstances mitigate the permanent sense of crisis. First, in terms of their attitude to methodology psychologists may be divided into 4 main categories:
 - 1) those who are largely indifferent to general methodological issues; methodological rigorists who adhere to traditional, largely Positivist, research standards
 - 2) methodological anarchists generally sharing Paul Feuerabend's "anything goes" credo; and
 - 3) methodological liberals who combine post-modernists and more traditional research approaches. By far the largest number of psychologists belongs to the first group, which makes the psychological community not very sensitive to the "eternal" methodological problems of psychology. Secondly, psychologists have got used to its permanent crisis which they often perceive as the normal state of their "abnormal" science. This sentiment, among other things, strengthens the long-standing conviction of the "special path" of psychology whereby its status cannot be assessed by comparing it to the natural sciences regarding their dissimilarity as a manifestation of the crisis of psychology (Gergen, 1994, etc.).

Third, psychology's methodological discourse expresses a kind of "poetics" of crisis, perceived in a positive light as something that stimulates the development of the psychological science, makes it more perceptive of methodological problems, etc., which prevents a sense of permanent crisis degenerating into a sense of permanent frustration. Studiedly optimistic statements such as "it is unclear whether there was a crisis or not, but it's good it's over" (McGuire, 1976) have gained some currency.

"Horizontal" Rupture The division of psychology into various schools that look like psychological empires is one of the commonly known symptoms of the permanent crisis of psychology. The number of "psychological empires keeps growing as new "states within the psychological state" such as social constructionism, dialectical psychology, etc. are added to the traditional ones such as cognitivism, behaviorism, and psychoanalysis (Smith, 2001)

The proliferation of schools of thought that cannot find a common language (Ohlsson, 2007) is a great irritant to psychologists who seek to unite these schools in larger "types of psychology" such as "German-Austrian" and "North-American psychology" (Toomela, 2007). It multiplies the number of horizontal demarcation lines within the psychological science.

Such demarcations of the psychological science are reproduced and consolidated in psychological practice because its main areas of research give rise to corresponding trends in practical psychology. The feeble unification trends, far from diminishing, tend to increase entropy because their product as a rule is new, independent research currents that bear little resemblance to their "progenitors".

The main challenges in the way of integration of psychology spring not so much from the multiplicity of schools and trends arising on the basis of psychological meta-theories, as from their incommensurability, to use T. Kuhn's term. Each "psychological empire" lives according to its own laws including the rules of generating psychological knowledge, criteria of its authenticity, verification methods, etc. Meanwhile, the psychological meta-theories that underlie research trends are "more than theories". C.H. Franklin rightly notes that psychological theories are rules which prescribe what the researcher should do and how (Franklin, 1982), i.e. psychological theories effectively perform paradigmatic functions. Naturally, most psychological theories generate a huge body of empirical studies carried out on their basis and such publications as Psychological Abstracts bring together both under the heading of "theory" and, as is well known, the results of empirical studies inspired by this or that psychological theory are usually interpreted on the basis of that theory, thus repeatedly reproducing the "methodological circle" described by K. Danziger (Danziger, 1985). As a result the so-called "crucial experiments" designed to establish which of the conflicting theories is the right one turn out to be largely ineffective because empirical data are interpreted in terms of one of the theories being "verified," which inevitably they confirm. Contrary to Thomas Huxley's dismal statement that "the great tragedy of science is that an ugly fact can kill a beautiful theory" (Huxley, 1902, p. 63) facts per se are unable not only to "kill" a psychological theory, but even to seriously damage it.

To add to the picture, the majority of psychological theories have an "upper" and "lower" tie-ins: the "upper" being the underlying philosophical ideas of the nature of man and society and the "lower" having to do with the personal and psychological traits of their authors. As L. Hjelle and D. Ziegler stress, all the theories of personality are based on certain philosophical premises regarding the nature of man (Hjelle, Ziegler, 1992). For example, psychoanalysis adheres to a "gloomy concept of the human nature" (Ibid.) which flows from Freud's study of mentally disturbed people, and humanistic psychology is wedded to the idea that man is inherently good and capable of self-improvement (Ibid.).

L. Hjelle and D. Ziegler emphasize the "lower-end" tie-in of psychological theories regarding the need to explain it as a general methodological principle and claiming that in order to understand the principles preached by this or that student of personality one needs information about his/her religious and social-economic status, the size of his/her family and the sequence of their birth relations with

parents, education and professional experience(Ibid.).

Earlier the idea was expressed by B. Eiduson who believed that the theories of human nature are less an intellectual means of expressing the objective reality than the psychological traits of its authors (Eiduson, 1962). And J. Richards stressed that the theories any science develops bear the footprints of the personality of their authors, but that there is not a single scientific discipline in which the link stands out in such bold relief as in psychology (Richards, 1987). Not surprisingly, to borrow an apt metaphor from Agnew and Pyke, scientific research is similar to a love affair, and rejection of a once recognized theory is akin to jilting a sweetheart and requires more than just negative information about the sweetheart (Agnew, Pyke). As a result, psychological theories are not just "more", but "much more" than theories, at least much more than the term means in natural sciences, and the theoretical disunity of psychology is something more than the coexistence of various concepts within that science.

LOGICAL EMPIRICISM

Logical empiricism is a philosophic movement rather than a set of doctrines, and it flourished in the 1920s and 30s in several centers in Europe and in the 40s and 50s in the United States. It had several different leaders whose views changed considerably over time. Moreover, these thinkers differed from one another, often sharply. Because logical empiricism is here construed as a movement rather than as doctrine, there is probably no important position that all logical empiricists shared—including, surprisingly enough, empiricism and while most participants in the movement were empiricists of one form or another, they disagreed on what the best form of empiricism was and on the cognitive status of empiricism. What held the group together was a common concern for scientific methodology and the important role that science could play in reshaping society. Within that scientific methodology the logical empiricists wanted to find a natural and important role for logic and mathematics and to find an understanding of philosophy according to which it was part of the scientific enterprise.

MAPPING THE MOVEMENT

The term 'logical empiricism' has no very precise boundaries and still less that distinguishes it from 'logical positivism'. It is therefore hard to map. 'Logical empiricism' here includes three groups:

- (1) the Vienna Circle, here taken broadly to include those who were part of various private discussion groups, especially that around Moritz Schlick, and also the members of the more public Ernst Mach Society (Verein Ernst Mach),
- (2) the smaller, but perhaps more influential Berlin Society for Empirical Philosophy (later called the Berlin Society for Scientific Philosophy), and those influenced by or who interacted with members of the first two groups and shared an intellectual kinship with them. Besides Vienna and Berlin, there were important centers of the movement in England, France, Scandinavia, at several universities in the U.S., and even China

This characterization includes thinkers who disagreed with doctrines espoused by members of the original groups and even some who defined themselves in opposition to the movement. This results in a vague boundary, but it suffices to identify a movement in which a large number of able philosophers self-consciously participated and to distinguish logical empiricism from other movements.

SOME MAJOR PARTICIPANTS IN THE MOVEMENT

The logical empiricist movement is the sum of the interwoven trajectories of its members, so one way of describing that movement is to trace those various trajectories. To do so in detail for all those involved would take rather longer than the movement lasted. That would be inappropriate for one entry in an encyclopedia, especially one in which entries for many of the members will appear independently. The thumbnail sketches of the work of some representative figures below show the breadth and international character of the movement. While the list is long, it covers only a small fraction of those involved and leaves out many important thinkers.

A. J. AYER (1910–1989)

An English philosopher in the tradition of British empiricism, Ayer visited the Vienna Circle in 1932–33. His book *Language, Truth, and Logic* (1936) was a best seller after World War II and represents logical positivism to many English speakers.

RUDOLF CARNAP (1891–1970)

German by birth, he taught in Vienna, Prague, Chicago, and Los Angeles. He was one of the leaders of the Vienna Circle and of logical empiricism, especially of those within the movement whose formulations were more liberal, e.g., with respect to the criterion verification. He defended logical and methodological pluralism and worked to develop an epistemic approach to probability.

WALTER DUBISLAV (1895–1937)

A German logician and philosopher of science, Dubislav was one of the founders, with Reichenbach and Grelling, of the Berlin Society of Empirical (later Scientific) Philosophy.

HERBERT FEIGL (1902–1988)

Born in what is now the Czech Republic, Feigl studied in Vienna with Schlick and Hahn. He emigrated to the U.S. before most other logical empiricists would do so. He taught at the Universities of Iowa and Minnesota and founded both *Philosophical Studies*, with Wilfrid Sellars, and the Minnesota Center for the Philosophy of Science. He is best known for his work on the mind-body problem.

ISSUES

It is not possible in an essay of this scope to trace all the issues that the logical empiricists addressed or even to treat any one of them with completeness. What is possible is to highlight some salient issues, clear away some misconceptions about them, and sketch a bit how those issues were developed over time. The first is a related set of concerns: empiricism, verificationism, and anti-metaphysics. The second is the logical empiricists' treatment of logic and mathematics as analytic. Third is the related issues of the unity of science and reduction. And finally, comes the issue of probability. Given what has already been said, the reader should be aware that none of the doctrines discussed below was shared by all members of the logical empiricist movement.

EMPIRICISM, VERIFICATIONISM, AND ANTI-METAPHYSIC

Since antiquity the idea that natural science rests importantly on experience has been non-controversial. The only real questions about the sources of scientific knowledge are: Are there parts of science that do not rest on experience or rest also on something other than experience? If so what account can we give of those parts? And to the extent that science does rest on experience how

can we know that it does? There is another question about science related to these, though not strictly about the sources of science, and that is: Why, in making claims about the world, should we be scientific as opposed to say mystical? The difficulty is that any scientific answer to this last question would reasonably be thought to beg the very question it purports to address.

Long before the twentieth century the prevailing opinion was that Euclidean geometry, standard mathematics, and logic did not rest on experience in any obvious way. They were largely presupposed in our empirical work, and it was difficult to see what if anything might disconfirm them. Geometry was a special case and might be handled in different ways that we shall not discuss here. That leaves logic and mathematics.

ANALYTICITY

Logic, mathematics, and mathematical geometry had traditionally seemed to be confirmationally "different". Indeed it is hard to indicate any conditions under which any parts of them would be disconfirmed. Leibniz had called them truths of reason. Hume said that they represented relations of ideas. Kant had held that the truths in these areas were a priori. Mathematics and geometry were not analytic for Kant, but logic was. Kant had two criteria of analyticity, apparently thinking them equivalent. First, in subject-predicate sentences, an analytic sentence is one in which the concept of the predicate is contained in that of the subject. Second, an analytic sentence is one whose denial is self-contradictory. This seems to include not only the sentences whose surface logical form would be of the required sort but also those that can be got from such logical truths by making substitutions that were conceptually equivalent. The more modern rough analog of this is to say that the analytic sentences are those that are true in virtue of logic and definition.

INDIC INFLUENCES ON MODERN PSYCHOLOGY INDIC INFLUENCES ON MODERN PSYCHOLOGY

This is only the beginning of an outline which I hope others on the Yoga Psychology list will help to flesh out. I am basing the information here primarily on two sources: J.J. Clarke's "Oriental Enlightenment: The Encounter Between Asian and Western Thought" and Eugene Taylor's introduction to "The Physical and Psychological Effects of Meditation: A Review of Contemporary Research with a Comprehensive Bibliography, 1931 - 1996. The outline begins with some distinctions between psychology, psychotherapy and psychiatry. Then there is a quick and extremely brief overview of the basic historical trends in psychology. Finally, there is a list with brief descriptions of some of the major individuals who have brought Indic influences to bear on psychology.

PSYCHOLOGY, PSYCHOTHERAPY AND PSYCHIATRY

"Psychology", as taught in universities throughout the world, refers to an academic discipline, and a science which was established in the late 19th century. Several times on the Yoga Psychology list, there has been reference to "science" as if the only real science is that which deals with physics and the brain. However, the research methodology of psychology has been dealing with human experience for over 120 years, even if often or mostly in a reductionist fashion. Psychological science includes a wide variety of disciplines, including developmental psychology, personality psychology, social psychology, comparative or evolutionary psychology, and among the applied psychological disciplines, educational, sports and neuropsychology. Typically, at least in the United States, a psychologist has a Ph.D. (Doctorate).

"Psychiatry" is a subspecialty of the medical profession. A practicing psychiatrist usually has at least

an M.D., though sometimes a Ph.D. as well. Psychiatrists are primarily focused on psychopathology, treating mental illness. Historically (until approximately 50 years ago) this meant serious mental illness - the psychoses, manic-depression, major depression, obsessive-compulsive disorder, etc. With the increasing monetarization of the profession, there has been an widening array of so-called disorders which have increased to the extent that virtually nobody may be said to be free of mental illness.

"*Psychotherapy*" refers to a healing practice whose beginnings are associated for the most part with the psychoanalysis of Sigmund Freud, who was by training a neurologist, not a psychologist. For the first 50 years of the 20th century, most practitioners of psychotherapy were psychiatrists, which means their training was in the field of medicine. By the 1970s, psychoanalysis had begun to fall out of favor, and the biological approach (drugs, essentially, though electro-convulsive therapy has had a resurgence as well) has gradually come to predominate, not in a small way because of the influence of the pharmaceutical companies. Psychiatrists receive very little training in psychology. Psychologists make use of psychoanalytic ideas and practices, though there are uniquely psychological contributions to therapy such as behavioral therapy, cognitive-behavioral therapy and humanistic therapy, to name the most widely used approaches.

HISTORICAL OVERVIEW

The psychologist Cyril Burt once summarized the modern history of psychological science in this way: "Psychology first lost its soul, then it lost its mind, until it was finally in danger of losing consciousness altogether". The official beginning of the science of psychology is 1879, when Wilhelm Wundt established the first psychological laboratory in Leipzig, Germany. The first formal school of psychology was the introspectionist school. Previously, psychology had been the domain of the philosophers. In an attempt to separate philosophy and science, psychologists no longer referred to the "soul".

The "introspection" of this early school of psychology was an extremely superficial and reductionist cataloging of sensory experience. There was little progress made during the 30 or 40 years this school was in existence. (Though William James wrote his famous "*Principles of Psychology*" during this period, he failed to establish a separate school or approach to psychology).

The second psychological school represented a radical break from the Introspectionists, and was initiated in 1913 by John Watson, the first behaviorist. He called for the elimination of all references to internal experience (this is what Burt was referring to as psychology "losing its mind"). B. F. Skinner, several decades later, took this a step further, referring to the brain as a "black box", and refusing acknowledgment of any sort of consciousness at all.

In the late 1950s, the cognitive "revolution" was initiated, often considered to be officially begun with George Miller's article, "*The Magic Number 7, plus or minus 2*" (this refers to the amount of "bits of information" which the average human being can carry in their memory - the reference to the ancient magic number "7" was made consciously, though the idea that mystical associations were to be taken seriously was strenuously avoided. You might say that psychological science was finally beginning to regain consciousness at this time!

Since the 1950s, there have no longer been separate competing "schools" of psychology, a problem which has plagued the field of psychotherapy, which has over 400 separate and non-integrated

theories of how therapy works. The above-mentioned divisions of psychology - developmental, personality, social, etc - are considered specialty areas of one discipline, not competing schools of thought, much like nuclear physics and astrophysics, as opposed to the conflicting theories of cognitive therapy and psychoanalysis.

Generally speaking, university departments of psychology hold the purely scientific disciplines in much higher esteem than the applied disciplines of psychotherapy, educational psychology, etc. The names "Freud" and "Jung" are rarely even mentioned past the introductory courses of psychology. Many people who are familiar with popular versions of psychology have heard of the "four forces of psychology" (psychoanalysis, behavior therapy, humanistic therapy, transpersonal therapy).

Technically, these are 4 divisions of psychotherapy, and have little connection with the world of scientific psychology. Even within the world of mainstream psychotherapy, the field of transpersonal psychotherapy is considered a fringe discipline. This should be kept in mind for the rest of this outline, as it is in the area of transpersonal theory that the Indic traditions have had the most direct influence.

INDIC INFLUENCES ON MODERN PSYCHOLOGY

Gustav Fechner:

(I'm writing this partly from memory, and will try to find more in the future. I invite anyone who has more knowledge of Fechner's work to send corrections and additional information). Fechner was a physiologist with interests in mystical traditions. I believe his interests included Indian philosophy, but I'm not positive. Here is an interesting quotation which shows a surprisingly modern - or even post-modern - approach to science:

"That gravitation extends throughout the whole world is a matter of faith; that laws which are traceable in our limited realm extend limitlessly in space and time is a matter of faith; that there are atoms and light waves is a matter of faith; the beginning and the goal of history are matters of faith; even in geometry there are things we take upon faith, such as the number of the dimensions of space and the definition of parallel lines. Indeed, strictly speaking everything is a matter of faith which is not directly experienced... Ultimately the best faith is that which is least contradictory in itself and to all knowledge and to our practical interest.

ONE OF THE OTHER MAJOR FIGURES IN TRANSPERSONAL PSYCHOLOGY INCLUDE:

Charles Tart, an academic psychologist, who published "Altered States of Consciousness" in 1969, which contained an attempt to bring together systems thinking and ideas from teachings on Hindu and Buddhist meditation. Claudio Naranjo, a psychiatrist, began writing in the late 1960s on: Gestalt therapy and Buddhist meditation. Robert Ornstein, a psychologist, in 1971 published "The Psychology of Consciousness", which incorporates ideas from Sufism, Buddhism, Taoism and Hinduism.

Allan Weinstein, a psychologist, (named "Swami Ajaya" by the Indian Yoga teacher Swami Rama) wrote in 1976 "The Evolution of Consciousness and Psychotherapy". This book is particularly notable as it was published before Ken Wilber's first book, and includes the idea, derived independently from Wilber, of a spectrum of consciousness. However, the ideas in the book are much more closely drawn from Yoga and Vedanta, with the latter being fully acknowledged. Indian "psychology" is

depicted as far more subtle and sophisticated than the work of Freud or Jung. Also, unusual in transpersonal writings, Indian psychology is taken to deal with virtually all of the areas which many modern writings feel are better handled by Freud and Jung.

Daniel Goleman, a psychologist and former chief editor of the periodical "Psychology Today", wrote "The Varieties of Meditative Experience" in 1977. Goleman is worth dwelling on for a bit. A friend of Richard Alpert, he went to India to study Hindu and Buddhist meditation. He returned to study psychology at Harvard. He wrote his dissertation studying under Herbert Benson. I'm not absolutely sure of this, but if my memory is correct, it was Goleman who, in what I think was a spark of inspiration with decidedly mixed results, suggested that meditation could be presented in a palatable form to modern secularized individuals as a form of "stress management". He took ideas developed in the 1920s by the physiologist Walter Cannon and later refined by Hans Selye in the 1950s as the "stress cycle" (dealing with the continual arousal of the autonomic nervous system leading to nervous exhaustion). He then suggested that the technique of meditation primarily served to deactivate this stress cycle. At the time, I thought this was a brilliant way of bringing meditation into the mainstream. However, over the years, I've come to see that the result is that meditation has been reduced to something negligible compared to its original purpose. Goleman, for example, defines meditation in "Varieties" as "an attitude of attentional manipulation". Anyone with any meditative experience knows that bringing this sort of attitude to the practice of meditation is likely to lead to headaches and irritability rather than a transformation of consciousness! In any case, the whole development of stress management and the wider disciplines of health psychology, behavioral medicine and complementary medicine, needs a whole study. Each of these fields has been deeply impacted by Indian practices and ideas, and many of the new centers for alternative and complementary medicine are making big efforts to hide this connection.

WHAT IS ESSENTIAL ASPECTS OF KNOWLEDGE PARADIGMS: ONTOLOGY, EPISTEMOLOGY, AND METHODOLOGY. PARADIGMS OF WESTERN PSYCHOLOGY: POSITIVISM, POST-POSITIVISM, CRITICAL PERSPECTIVE, SOCIAL CONSTRUCTIONISM, EXISTENTIAL PHENOMENOLOGY, AND CO-OPERATIVE ENQUIRY PARADIGMATIC CONTROVERSIES?

ESSENTIAL ASPECTS OF KNOWLEDGE PARADIGMS: ONTOLOGY, EPISTEMOLOGY, AND METHODOLOGY. PARADIGMS OF WESTERN PSYCHOLOGY: POSITIVISM, POST-POSITIVISM, CRITICAL PERSPECTIVE, SOCIAL CONSTRUCTIONISM, EXISTENTIAL PHENOMENOLOGY, AND CO-OPERATIVE ENQUIRY. PARADIGMATIC CONTROVERSIES

Essential aspects of knowledge paradigms: Ontology, epistemology, and methodology

A review of literature from leaders in the field leads to a deep understanding of the meaning of a research paradigm. For example, in *The Structure of Scientific Revolutions* American philosopher Thomas Kuhn (1962) first used the word paradigm to mean a philosophical way of thinking. The word has its aetiology in Greek where it means pattern. In educational research the term paradigm is used to describe a researcher's 'worldview' (Mackenzie & Knipe, 2006). This worldview is the perspective, or thinking, or school thought, or set of shared beliefs, that informs the meaning or interpretation of research data.

Or, as Lather (1986) explains, a research paradigm inherently reflects the researcher's beliefs about the world that s/he lives in and wants to live in. It constitutes the abstract beliefs and principles that shape how a researcher sees the world, and how s/he interprets and acts within that world. When we say that it defines the researcher's worldview, we mean that a paradigm constitutes the abstract beliefs and principles that shape how a researcher sees the world, and how s/he interprets and acts within that world. It is the lens through which a researcher looks at the world. It is the conceptual lens through which the researcher examines the methodological aspects of their research project to determine the research methods that will be used and how the data will be analysed.

Guba and Lincoln (1994) who are leaders in the field define a paradigm as a basic set of beliefs or worldview that guides research action or an investigation. Similarly, the gurus of qualitative research, Denzin and Lincoln (2000), define paradigms as human constructions, which deal with first principles or ultimates indicating where the researcher is coming from so as to construct meaning embedded in data. Paradigms are thus important because they provide beliefs and dictates, which, for scholars in a particular discipline, influence what should be studied, how it should be studied, and how the results of the study should be interpreted.

The paradigm defines a researcher's philosophical orientation and, as we shall see in the conclusion to this paper, this has significant implications for every decision made in the research process, including choice of methodology and methods. And so a paradigm tells us how meaning will be constructed from the data we shall gather, based on our individual experiences, (i.e. where we are coming from). It is therefore very important, that when you write your research proposal for HDR, you clearly state the paradigm in which you are locating your research.

ESSENTIAL ELEMENTS OF A PARADIGM

According to Lincoln and Guba (1985), a paradigm comprises four elements, namely, epistemology, ontology, methodology and axiology. It is important to have a firm understanding of these elements because they comprise the basic assumptions, beliefs, norms and values that each paradigm holds. Therefore, in locating your research proposal in a particular research paradigm, the understanding is that your research will uphold, and be guided by the assumptions, beliefs, norms and values of the chosen paradigm. It is therefore important that you demonstrate that you know what each of these elements mean.

EPISTEMOLOGY OF A PARADIGM

Epistemology has its aetiology in Greek where the word episteme, means knowledge. Put simply, in research, epistemology is used to describe how we come to know something; how we know the truth or reality; or as Cooksey and McDonald (2011) put it, what counts as knowledge within the world. It is concerned with the very bases of knowledge – its nature, and forms and how it can be acquired, and how it can be communicated to other human beings. It focuses on the nature of human knowledge and comprehension that you, as the researcher or knower, can possibly acquire so as to be able to extend, broaden and deepen understanding in your field of research. Schwand (1997) defines it as the study of the nature of knowledge and justification. And so, in considering the epistemology of your research, you ask questions like: Is knowledge something which can be acquired on the one hand, or, is it something which has to be personally experienced? What is the nature of knowledge and the relationship between the knower and the would-be known? What is the relationship between me, as the inquirer, and what is known? These questions are important

because they help the researcher to position themselves in the research context so that they can discover what else is new, given what is known. And so to understand the epistemological element of your paradigm, you should ask the very important question of how we know what we know?

This question is the basis for investigating 'truth'. Whereas it might be debatable as to whether there is such a thing as 'truth' (Davidson, 2000), if we take factual evidence as truth, then epistemology helps you to ask factual questions, such as how do we know the truth? What counts as knowledge? These are particularly important questions because one of the criteria by which higher degree research is judged is its contribution to knowledge. In trying to articulate the answers to the above questions, researchers can draw from four sources of knowledge. Those sources are intuitive knowledge, authoritative knowledge, logical knowledge, and empirical knowledge (Slavin, 1984). If you rely on forms of knowledge such as beliefs, faith, and intuition, then the epistemological basis of your research is intuitive knowledge. If you rely on data gathered from people in the know, books, leaders or organisations, then your epistemology is grounded on authoritative knowledge.

If you put emphasis on reason as the surest path to knowing the truth, then this approach is called rationalist epistemology or logical knowledge. On the other hand, if you put emphasis on the understanding that knowledge is best derived from sense experiences, and demonstrable, objective facts, then your approach leans towards empirical epistemology. Epistemology is important because, it helps you to establish the faith you put in your data. It affects how you will go about uncovering knowledge in the social context that you will investigate.

ONTOLOGY OF A PARADIGM

Ontology is a branch of philosophy concerned with the assumptions we make in order to believe that something makes sense or is real, or the very nature or essence of the social phenomenon we are investigating (Scotland, 2012). It is the philosophical study of the nature of existence or reality, of being or becoming, as well as the basic categories of things that exist and their relations. It examines your underlying belief system as the researcher, about the nature of being and existence. It is concerned with the assumptions we make in order to believe that something makes sense or is real, or the very nature or essence of the social phenomenon we are investigating. It helps you to conceptualise the form and nature of reality and what you believe can be known about that reality. Philosophical assumptions about the nature of reality are crucial to understanding how you make meaning of the data you gather. These assumptions, concepts or propositions help to orientate your thinking about the research problem, its significance, and how you might approach it so as to contribute to its solution.

Ontology is so essential to a paradigm because it helps to provide an understanding of the things that constitute the world, as it is known (Scott & Usher, 2004). It seeks to determine the real nature, or the foundational concepts which constitute themes that we analyse to make sense of the meaning embedded in research data. It makes you ask questions such as: Is there reality out there in the social world or is it a construction, created by one's own mind? What is the nature of reality? In other words, Is reality of an objective nature, or the result of individual cognition? What is the nature of the situation being studied? Ontology enables you to examine your underlying belief system and philosophical assumptions as the researcher, about the nature of being, existence and reality.

Philosophical assumptions about the nature of reality are crucial to understanding how you make meaning of the data you gather. These assumptions, concepts or propositions help to orientate your thinking about the research problem, its significance, and how you might approach it so as to

answer your research question, understand the problem investigated and contribute to its solution.

METHODOLOGY OF A PARADIGM

Methodology is the broad term used to refer to the research design, methods, approaches and procedures used in an investigation that is well planned to find out something (Keeves, 1997). For example, data gathering, participants, instruments used, and data analysis, are all parts of the broad field of methodology. In sum, the methodology articulates the logic and flow of the systematic processes followed in conducting a research project, so as to gain knowledge about a research problem.

It includes assumptions made, limitations encountered and how they were mitigated or minimised. It focuses on how we come to know the world or gain knowledge about part of it (Moreno, 1947). In considering the methodology for your research proposal, you should ask yourself the question: How shall I go about obtaining the desired data, knowledge and understandings that will enable me to answer my research question and thus make a contribution to knowledge.

In really simple terms, the three most common paradigms are explained below (and are shown in this epistemology diagram too, taken from here):

- **Positivists** believe that there is a single reality, which can be measured and known, and therefore they are more likely to use quantitative methods to measure and this reality.
 - **Constructivists** believe that there is no single reality or truth, and therefore reality needs to be interpreted, and therefore they are more likely to use qualitative methods to get those multiple realities.
 - **Pragmatists** believe that reality is constantly renegotiated, debated, interpreted, and therefore the best method to use is the one that solves the problem
- The table below (which I created) gives a more detailed overview of each paradigm (and contains subjectivism and critical too), and your own research paradigm could very well sit in between one of the paradigms. You could use a top down or a bottom up approach to decide where your research sits.

In a bottom up approach, you decide on your research question, then you decide which methods, methodology, theoretical perspective you will approach your research from. In reality, I believe it's probably neither strictly a top down or bottom up approach, you probably go back and forth till you find the right fit. I believe each research project would have a different research paradigm and hence a different theoretical perspective.

Applied, then to social psychology, it is important to understand the tension, throughout its history, between:

1. A more traditional experimental (quantitative) approach, which sees social reality as a set of facts to be known for all time by measuring people in the laboratory;
2. A more critical, discursive (qualitative) approach, which sees social reality as mutually constructed between people in the real world."

However, I must add that pragmatism (and hence mixed methods research) is also being increasingly used in social sciences.

THE ADOPTION OF NARRATIVE WITHIN PSYCHOLOGY

Narrative approaches have been applied diversely through a vast number of distinct fields. These include history[20–22], philosophy[23], sociology[24,25], anthropology[26], education[27,28], social-work[29,30] and psychology[31–33]. However, the foundations of the broad area that is now referred to as the narrative approach in psychology have their roots mainly in writings within literary theory[34].

A considerable body of work now exists in relation to policy-making and policy analysis[35,36][see, for example, 35,36], with an ever-increasing proportion of this work looking at climate change and environmental research[17,19]. The turn to narrative ways of understanding human action and experience has its theoretical place within what has generally been termed 'the interpretative turn' in the social sciences[37,38]. When adopted by psychology, the interpretative turn was a way in which certain writers such as Bruner[32] intended to 'return' to a theoretical position of understanding individual psychology that had been seen to be overwhelmingly dominated by mechanistic metaphors[39] and the normative 'cognitive revolution'[32]. According to Bruner, the cognitive revolution, which developed from the 1950s alongside the evolution of the information communication technologies, was an attempt to understand human actions and psychological processes as being analogous to those of a computer, using as its base a computational information-processing metaphor to explore how individuals make sense of their world[32]. Similarly, Sarbin argues that the dominant worldview in modern Western civilisation relies on the 'root metaphor' of mechanism[39]. He argues that by drawing on such a metaphor we come to understand and explain our lives in terms of 'drives' and 'forces' that determine the causes of behaviour that underpin human experience.

CONCLUSION

This essay started by asserting that the work existing on the topic of pro-environmental behaviours within environmental psychology has not had the wide social impact needed to address the challenges arising as a result of climate change. Whilst we know more about people's decision-making and attitudes and the factors that influence behaviours as a result of the 40 years of work on pro-environmental behaviours, there hasn't been a subsequent change in the way in which people act in relation to energy.

The essay has argued that owing to the complexity associated with climate change, energy use and sustainability, the use of a normative social cognitive paradigm starts from a position that removes people from their social and cultural context. A number of researchers from across the social sciences have, in the last decade, provided strong arguments for the value of adopting narrative approaches in understanding behavioural responses to climate change and the need to embed energy efficiency into daily practices.

Such work has looked at how people make sense of their lives and how energy policies can embed particular narratives within them in order to evoke particular individual responses and understand community-level approaches to environmental challenges. However, the move towards narrative within pro-environmental psychology remains in its infancy.

In this essay I have sought to redress this balance by exploring the development of what has become known as the 'narrative turn' in psychology, in order to provide a canvas upon which further applications of narrative within pro-environmental psychological research can build. The paper has reviewed ways in which various writers have adopted the narrative metaphor in attempting to understand individual and social understanding. As McAdams has argued, narratives are essential to our human development and understanding: "We are tellers of tales. We each seek to provide our

scattered and often confusing experiences with a sense of coherence by arranging the episodes of our lives into stories”

PARADIGMS OF WESTERN PSYCHOLOGY: POSITIVISM

As a philosophical ideology and movement, positivism first assumed its distinctive features in the work of Comte, who also named and systematized the science of sociology. It then developed through several stages known by various names, such as empiriocriticism, logical positivism, and logical empiricism, finally merging, in the mid-20th century, into the already existing tradition known as analytic philosophy.

The basic affirmations of positivism are (1) that all knowledge regarding matters of fact is based on the “positive” data of experience and (2) that beyond the realm of fact is that of pure logic and pure mathematics. Those two disciplines were already recognized by the 18th-century Scottish empiricist and skeptic David Hume as concerned merely with the “relations of ideas,” and, in a later phase of positivism, they were classified as purely formal sciences.

On the negative and critical side, the positivists became noted for their repudiation of metaphysics—i.e., of speculation regarding the nature of reality that radically goes beyond any possible evidence that could either support or refute such “transcendent” knowledge claims. In its basic ideological posture, positivism is thus worldly, secular, antitheological, and antimetaphysical.

Strict adherence to the testimony of observation and experience is the all-important imperative of positivism. That imperative was reflected also in the contributions by positivists to ethics and moral philosophy, which were generally utilitarian to the extent that something like “the greatest happiness for the greatest number of people” was their ethical maxim. It is notable, in this connection, that Comte was the founder of a short-lived religion, in which the object of worship was not the deity of the monotheistic faiths but humanity.

The proximate roots of positivism, however, clearly lie in the French Enlightenment, which stressed the clear light of reason, and in 18th-century British empiricism, particularly that of Hume and of Bishop George Berkeley, which stressed the role of sense experience. Comte was influenced specifically by the Enlightenment Encyclopaedists (such as Denis Diderot, Jean d’Alembert, and others) and, especially in his social thinking, was decisively influenced by the founder of French socialism, Claude-Henri, comte de Saint-Simon, whose disciple he had been in his early years and from whom the very designation *positivism* stems.

Comte’s positivism was posited on the assertion of a so-called law of the three phases (or stages) of intellectual development. There is a parallel, as Comte saw it, between the evolution of thought patterns in the entire history of humankind, on the one hand, and in the history of an individual’s development from infancy to adulthood, on the other. In the first, or so-called theological, stage, natural phenomena are explained as the results of supernatural or divine powers. It matters not whether the religion is polytheistic or monotheistic; in either case, miraculous powers or wills are believed to produce the observed events. This stage was criticized by Comte as anthropomorphic—i.e., as resting on all-too-human analogies. Generally, animistic explanations—made in terms of the volitions of soul-like beings operating behind the appearances—are rejected as primitive projections of unverifiable entities

The second phase, called metaphysical, is in some cases merely a depersonalized theology: the observable processes of nature are assumed to arise from impersonal powers, occult qualities, vital forces, or entelechies (internal perfecting principles). In other instances, the realm of observable

facts is considered as an imperfect copy or imitation of eternal ideas, as in Plato's metaphysics of pure forms. Again, Comte charged that no genuine explanations result; questions concerning ultimate reality, first causes, or absolute beginnings are thus declared to be absolutely unanswerable. The metaphysical quest can lead only to the conclusion expressed by the German biologist and physiologist Emil du Bois-Reymond: "Ignoramus et ignorabimus" (Latin: "We are and shall be ignorant"). It is a deception through verbal devices and the fruitless rendering of concepts as real things.

THE CRITICAL POSITIVISM OF MACH AND AVENARIUS

The influences of Hume and of Comte were also manifest in important developments in German positivism, just prior to World War I. The outstanding representatives of this school were Ernst Mach—a philosophical critic of the physics of Isaac Newton, an original thinker as a physicist, and a historian of mechanics, thermodynamics, and optics—and Richard Avenarius, founder of a philosophy known as empiriocriticism.

Mach and, along with him, Wilhelm Ostwald, the originator of physical chemistry, were the most prominent opponents of the atomic theory in physics and chemistry. Ostwald even attempted to derive the basic chemical laws of constant and multiple proportions without the help of the atomic hypothesis. To the positivist the atom, since it could not be seen, was to be considered at best a "convenient fiction" and at worst an illegitimate ad hoc hypothesis. Hans Vaihinger, a subjectivist who called himself an "idealistic positivist," pursued the idea of useful fictions to the limit and was convinced that the concept of the atom, along with the mathematical concepts of the infinite and the infinitesimal and those of causation, free will, the economic actor, and the like, were altogether fictitious, some of them even containing internal contradictions.

POST POSITIVISM OF PARADIGMS PSYCHOLOGY

Let's start our very brief discussion of philosophy of science with a simple distinction between **epistemology** and **methodology**. The term epistemology comes from the Greek word *epistēmē*, their term for knowledge. In simple terms, epistemology is the philosophy of knowledge or of how we come to know. Methodology is also concerned with how we come to know, but is much more practical in nature. Methodology is focused on the specific ways – the methods – that we can use to try to understand our world better. Epistemology and methodology are intimately related: the former involves the *philosophy* of how we come to know the world and the latter involves the *practice*.

When most people in our society think about science, they think about some guy in a white lab coat working at a lab bench mixing up chemicals. They think of science as boring, cut-and-dry, and they think of the scientist as narrow-minded and esoteric (the ultimate nerd – think of the humorous but nonetheless mad scientist in the *Back to the Future* movies, for instance). A lot of our stereotypes about science come from a period where science was dominated by a particular philosophy – **positivism** – that tended to support some of these views. Here, I want to suggest (no matter what the movie industry may think) that science has moved on in its thinking into an era of **post-positivism** where many of those stereotypes of the scientist no longer hold up.

Let's begin by considering what positivism is. In its broadest sense, positivism is a rejection of metaphysics (I leave it to you to look up that term if you're not familiar with it). It is a position that holds that the goal of knowledge is simply to describe the phenomena that we experience. The purpose of science is simply to stick to what we can observe and measure. Knowledge of anything beyond that, a positivist would hold, is impossible. When I think of positivism (and the related philosophy of logical positivism) I think of the behaviorists in mid-20th Century psychology. These were the

mythical 'rat runners' who believed that psychology could only study what could be directly observed and measured. Since we can't directly observe emotions, thoughts, etc. (although we may be able to measure some of the physical and physiological accompaniments), these were not legitimate topics for a scientific psychology. B.F. Skinner argued that psychology needed to concentrate only on the positive and negative reinforcers of behavior in order to predict how people will behave – everything else in between (like what the person is thinking) is irrelevant because it can't be measured.

In a positivist view of the world, science was seen as the way to get at truth, to understand the world well enough so that we might predict and control it. The world and the universe were deterministic – they operated by laws of cause and effect that we could discern if we applied the unique approach of the scientific method. Science was largely a mechanistic or mechanical affair. We use deductive reasoning to postulate theories that we can test. Based on the results of our studies, we may learn that our theory doesn't fit the facts well and so we need to revise our theory to better predic

reality. The positivist believed in *empiricism* – the idea that observation and measurement was the core of the scientific endeavor. The key approach of the scientific method is the experiment, the attempt to discern natural laws through direct manipulation and observation.

OK, I am exaggerating the positivist position (although you may be amazed at how close to this some of them actually came) in order to make a point. Things have changed in our views of science since the middle part of the 20th century. Probably the most important has been our shift away from positivism into what we term *post-positivism*. By post-positivism, I don't mean a slight adjustment to or revision of the positivist position – post-positivism is a wholesale rejection of the central tenets of positivism. A post-positivist might begin by recognizing that the way scientists think and work and the way we think in our everyday life are not distinctly different.

Scientific reasoning and common sense reasoning are essentially the same process. There is no difference in kind between the two, only a difference in degree. Scientists, for example, follow specific procedures to assure that observations are verifiable, accurate and consistent. In everyday reasoning, we don't always proceed so carefully (although, if you think about it, when the stakes are high, even in everyday life we become much more cautious about measurement. Think of the way most responsible parents keep continuous watch over their infants, noticing details that non-parents would never detect).

One of the most common forms of post-positivism is a philosophy called **critical realism**. A critical realist believes that there is a reality independent of our thinking about it that science can study. (This is in contrast with a **subjectivist** who would hold that there is no external reality – we're each making this all up!). Positivists were also realists. The difference is that the post-positivist critical realist recognizes that all observation is fallible and has error and that all theory is revisable.

In other words, the critical realist is *critical* of our ability to know reality with certainty. Where the positivist believed that the goal of science was to uncover the truth, the post-positivist critical realist believes that *the goal of science is to hold steadfastly to the goal of getting it right about reality, even though we can never achieve that goal!* Because all measurement is fallible, the post-positivist emphasizes the importance of multiple measures and observations, each of which may possess different types of error, and the need to use **triangulation** across these multiple errorful sources to try to get a better bead on what's happening in reality. The post-positivist also believes that all observations are theory-laden and that scientists (and everyone else, for that matter) are inherently biased

by their cultural experiences, world views, and so on. This is not cause to give up in despair, however. Just because I have my world view based on my experiences and you have yours doesn't mean that we can't hope to translate from each other's experiences or understand each other. That is, post-positivism rejects the **relativist** idea of the **incommensurability** of different perspectives, the idea that we can never understand each other because we come from different experiences and cultures. Most post-positivists are **constructivists** who believe that we each construct our view of the world based on our perceptions of it. Because perception and observation is fallible, our constructions must be imperfect.

So what is meant by **objectivity** in a post-positivist world? Positivists believed that objectivity was a characteristic that resided in the individual scientist. Scientists are responsible for putting aside their biases and beliefs and seeing the world as it 'really' is. Post positivists reject the idea that any individual can see the world perfectly as it really is. We are all biased and all of our observations are affected (theory-laden).

Our best hope for achieving objectivity is to triangulate across multiple fallible perspectives! Thus, objectivity is not the characteristic of an individual, it is inherently a social phenomenon. It is what multiple individuals are trying to achieve when they criticize each other's work. We never achieve objectivity perfectly, but we can approach it. The best way for us to improve the objectivity of what we do is to do it within the context of a broader contentious community of truth-seekers (including other scientists) who criticize each other's work. The theories that survive such intense scrutiny are a bit like the species that survive in the evolutionary struggle. (This is sometimes called the **natural selection theory of knowledge** and holds that ideas have 'survival value' and that knowledge evolves through a process of variation, selection and retention). They have adaptive value and are probably as close as our species can come to being objective and understanding reality.

Clearly, all of this stuff is not for the faint-of-heart. I've seen many a graduate student get lost in the maze of philosophical assumptions that contemporary philosophers of science argue about. And don't think that I believe this is not important stuff. But, in the end, I tend to turn pragmatist on these matters. Philosophers have been debating these issues for thousands of years and there is every reason to believe that they will continue to debate them for thousands of years more. Those of us who are practicing scientists should check in on this debate from time to time (perhaps every hundred years or so would be about right). We should think about the assumptions we make about the world when we conduct research. But in the meantime, we can't wait for the philosophers to settle the matter. After all, we do have our own work to do.

CRITICAL PERSPECTIVE OF PARADIGMS PSYCHOLOGY

At this point you have learned about four different theoretical paradigms we use to understand communication. One problem with these approaches is they often lack an explicit critique of the status quo of communication. Put another way, they serve as a general approach to understand communication norms rather than challenge them. We all realize that there are communication realities in the world that are hurtful and oppressive to particular people, and that there are people in the world that use communication to serve their own needs and interests.

THE NEED FOR CRITICAL THEORIES

The **Critical Theories Paradigm** helps us *understand how communication is used to oppress, and*

provides ways to foster positive social change (Foss & Foss; Fay). Critical Theories challenge the status quo of communication contexts, looking for alternatives to those forms of oppressive communication. These theories differ from other theoretical approaches because they seek praxis as the overarching goal. **Praxis** is *the combination of theory and action*. Rather than simply seeking to understand power structures, critical theories actively seek to change them in positive ways. Easily identifiable examples of critical approaches are Marxism, postmodernism, and feminism

These critical theories expose and challenge the communication of dominant social, economic, and political structures. Areas of inquiry include language, social relationships, organizational structures, politics, economics, media, cultural ideologies, interpersonal relationships, labor, and other social movements.

Cultural Studies focus on *understanding the real-life experiences of people, examining communication contexts for hidden power structures, and accomplishing positive social change as a result* (Dines and Humez; Kellner). According to Kellner, cultural studies involves three interconnected elements necessary for understanding, evaluating and challenging the power dynamics embedded in communication—political economy, textual analysis, and audience reception.

- **Political economy** focuses on *the macro level of communication*. Specifically, this part of cultural studies looks at the way media as text are situated in a given cultural context, and the political and economic realities of the cultural context. In the U.S., we would note that the political economy is one marked with gender, racial, and class inequities.
- **Textual analysis** involves *the process of deconstructing and analyzing elements of a media text*. If you wanted to look at a magazine with a critical eye, you would pay attention to the visual elements (the pictures in the ads; the celebrity photos, and any other drawings, cartoons or illustrations), the verbal messages (the text of the ads, the copy, captions that accompany the photographs), and the relationship between the advertisements and the copy. For example, is there an ad for Clinique eye shadow next to an article on the “hot new beauty tips for fall?” You would also want to pay attention to the representation of gender, race, and class identities as well. Are there any differences or similarities between the portrayal of white women and women of color? What sort of class identity is being offered as the one to emulate?
- **Audience reception** asks us to consider *the role of the text for the audience that consumes it*. You might want to learn why people read particular magazines—what purpose does it fill, what is the social function of this text?

ORIGINS OF CRITICAL THEORIES IN COMMUNICATION

Marxism is one of the earliest origins of critical theory. In addition, postmodernism, feminism, and postcolonialism have greatly influenced how critical theories have grown and expanded to challenge a greater number of social power structures. While each of these approaches examines a different area of oppression, all are critical approaches to enact great social changes, not only in western societies, but in cultures worldwide.

In the late 19th and early 20th centuries, Karl Marx’s ideas challenged the status quo of newly emerging industrial societies. As societies moved from agrarian-based economies to ones based in industrial manufacturing, there became an increasing division between the rich and the poor — much like the income inequality talked about so much today. Marx, in two of his most well-known works, *The Communist Manifesto* and *Capital*, argued that working class laborers were being oppressed by those in power, specifically the owners of manufacturing plants.

In any discussion of **Postmodernism**, another critical theoretical perspective, the difficulty of

defining the term is invariably part of the discussion. *Modern* refers to just now (from *modo* in Latin) and *post* means after.

Thus, this term translates into “after just now”—an idea that can be difficult to wrap our heads around. How do you, for example, point to or mark the period after just now? (Covino & Jolliffe, 76). In discussing the postmodern condition, Lyotard explained the relationship between those who have and don't have social power: “The [decision makers] allocate our lives for the growth of power. In matters of social justice and scientific truth alike, the legitimation of that power is based on optimizing the system's performance— efficiency” (27).

A third major influence on the development of the Critical Theories Paradigm comes from feminist theories. **Feminist theories** explore *power structures that create and recreate gendered differentiations in societies* (Foss & Foss; Dervin; MacKinnon). Critical feminist theories contend that gender relations are often oppressive to both men and women, and that they support an institution based on patriarchal values. Thus, critical feminist theories challenge dominant assumptions and practices of gender in ways that foster more equal and egalitarian forms of communication and social structures in society.

When discussing feminism and feminist theories we refer to a set of multiple and diverse theories. Feminist theories include a wide range of philosophical arguments, economic structures, and political viewpoints. Some of these include Marxist feminism, which focuses on the division of labor as a source of gender inequality, and liberal feminism, which asserts that men and women should have equal status in the culture—such as voting rights, educational and professional opportunities, and equal pay. Eco-feminism recognizes that all parts of the universe are interconnected and that oppression of women and other minorities is analogous to the oppression of the natural environment such as in the cutting down of natural forests to meet consumer demands for paper goods, or the killing of animals for the eating of meat.

CRITICAL THEORIES IN ACTION

Whether we listen to music on our phones, watch TV, go to the movies, or read a magazine, most of us consume media. Have you ever stopped to think about who puts together those messages? Have you wondered what their goals might be and why they want to send the messages they do? One way we can use critical theories is to examine who owns what media to determine what they are trying to accomplish (Croteau & Hoynes).

For example, why does General Electric want to own companies like RCA and NBC? Why does a company like Seagram's want to buy MCA (Universal Studios) and Polygram records? What world-views are these companies creating in the media they produce? These are all questions for which we might consider using theories from the Critical Theories Paradigm. Did you know that in 1983 50 corporations controlled most of the U.S. media (papers, television, movies, magazines, etc.) and that by 2004 that number has dropped down to five corporations (Bagdikian)? Using Critical Theories Paradigm, we can begin to examine the messages that so few companies are constructing and their impacts on how we understand the world around us as shaped through these messages.

Other examples from the critical paradigm include works that examine gender, consumerism, advertising, and television. In her work, *Who(se) Am I? The Identity and Image of Women in Hip-Hop* Perry examines the potential danger and damage to African-American women through their

objectification in Hip-Hop videos. Carole A.

Stabile examines the labor and marketing practices of Nike in her article, Nike, Social Responsibility, and the Hidden Abode of Production. Clint C. Wilson II and Felix Gutierrez discuss the portrayal of people of color in advertising in their article, Advertising and People of Color, while Jackson Katz explores mask of masculinity with his film, Tough Guise 2: The Ongoing Crisis of Violent Masculinity. We use critical theories to reveal a vast range of possible ideological structures that create and foster dominant world-views, and to challenge and change those ideologies that oppress others.

STRENGTHS

A significant strength of the Critical Theories Paradigm is that it combines theory and practice, seeking to create actual change from theoretical development. Rather than seeking prediction and control, or explanation and understanding, critical theories seek positive social change. The intent behind these theoretical perspectives is to help empower those whose world-views and ideological perspectives have not found equality in social contexts. At their best, critical theories have the potential to enact large-scale social change for both large and small groups of people.

WEAKNESSES

A potential weakness of critical theories is their dependence on social values. While empirical laws theories seek an objective reality, critical theories highlight subjective values that guide communication behaviors. When values conflict the question of "whose values are better?" emerges. Because values are subjective, answering this question is often filled with much conflict and debate. The example of gay marriage highlights a current debate taking place over ideological values. How do we define marriage? And, whose definition is best?

CRITICAL STANCE TOWARD TAKEN-FOR-GRANTED KNOWLEDGE

Social constructionism takes a critical stance toward psychology's taken-for-granted ways of understanding the world and ourselves. Psychology has modeled itself on the natural sciences. These assume the epistemological approach of positivism, the view that knowledge comes from objective, unbiased observation of the world and that there is a true or accurate description of people, events, and things that science endeavors to reveal.

Positivism assumes that the world comes to us ready-made, and our task is to discover its true nature. Within this epistemology, the experiment is the gold-standard research paradigm (see "Ontology and Epistemology and Positivism and Realism"). But social constructionism cautions us to be suspicious of our assumptions about how the world appears to be. For example, it may seem obvious to us that there are two naturally occurring categories of human being, men and women. But social constructionism bids us to seriously question whether the categories "man" and "woman" are simply a reflection of distinct types of human being and to consider instead that they are categories constructed by people themselves in the course of social interaction. The same is true of other highly socially relevant concepts, such as "race." While in former times, it may have seemed unquestionable that there exist different races of human beings, each with its own physical and psychological characteristics, research has failed to find any genetic basis for such distinctions; while human beings come in a diverse range of shapes, sizes, and colors, there is no evidence for the existence of genetically discrete races (see, e.g., Yudell et al. 2016).

We may ask why this matters and what social significance it has. The social constructionist would

argue that challenging the existence of such natural categories helps us to disrupt and destabilize many of the assumptions we hold about men and women and about nonwhite peoples, assumptions that underpin inequitable practices. The familiar arguments that particular characteristics (or lack of them) are natural for women or men, or for black people, are frequently used to defend inequalities.

SOCIAL CONSTRUCTIONISM

Social constructionism represents a radical challenge to mainstream psychology in both theory and research. It began to emerge in social psychology in the 1970s and 1980s as a recognizable body of work by those who would, today, refer to themselves as, for example, “critical psychologists” and “discursive psychologists.” Social constructionism poses a challenge to psychology’s individualistic, essentialist, and intrapsychic model of the person, replacing it with a radically social account of personhood and is, therefore, essentially a social psychology.

The taken-for-granted topics of mainstream psychology and social psychology, such as attitudes, motivation, personality, and emotion, were brought into question as structural features of the human psyche and instead seen as social constructions achieved through social interaction and language. As Craib (1997) points out, many social constructionist assumptions are fundamental to psychology’s disciplinary cousin, sociology, and it is a measure of the unhelpful separation of sociology and psychology since the early twentieth century that psychologists have only recently begun to engage with social constructionist ideas.

ORIGINS AND INFLUENCES

Although social constructionism is a relatively new term in the social sciences, especially psychology, its ideas and practices have a longer history in disciplines such as sociology, philosophy, and linguistics. The key tenet of social constructionism is that our knowledge of the world, including our understanding of human beings, is a product of human thought, language, and interaction rather than grounded in an observable and definable external reality.

Such an idea, although strange to many psychologists, is fundamental to longstanding concepts in the sociology of knowledge, such as ideology and false consciousness, which focus on how sociocultural forces construct our knowledge in particular ways. An important contributor to social constructionist thinking has been the micro-sociological approach of symbolic interactionism (see Berger and Luckmann 1966). George Mead, at the University of Chicago, had developed this approach from the earlier work of Herbert Blumer and later published his ideas in *Mind, Self and Society* (1934).

Mead had studied at Leipzig University under Wilhelm Wundt, who believed in the importance of sociocultural factors, such as myth, folk customs, and religion, in understanding human behavior and experience. Mead took up these ideas in his development of symbolic interactionism, which argues that people construct and negotiate identities for themselves and others through their everyday social interactions with each other. Language, as a system of socially shared symbolic meanings, is central to this constructive process.

In psychology, the emergence of social constructionism is usually dated from Gergen’s (1973) paper *Social Psychology as History* in which he argues that all knowledge, including psychological knowledge, is historically and culturally specific; we, therefore, must look beyond the individual and enquire into social, political, and economic realms for a proper understanding of the evolution of

present-day psychology and social life.

He argues that it is pointless to look for final descriptions of people or society, since the only abiding feature of psychological and social life is that it is continually changing. Social psychology, thus, becomes a form of historical undertaking, since all we can ever do is to try to understand and account for how the world and people appear to be at the present time.

Gergen's paper was written at the time of what is referred to as "the crisis in social psychology" (see, e.g., Harré and Secord 1972; Armistead 1974), which provided some of the momentum for social constructionist ideas in psychology. This crisis centered on worries about the way that social psychology's agenda was driven by the needs and motivations of powerful factions (government, the military, and commerce); social psychology as a discipline can be said to have emerged from the attempts by psychologists to provide the US and British governments during the Second World War with knowledge that could be used for propaganda and to manipulate behavior. Social psychology, therefore, had historically served, and was paid for by, those in positions of power, both in government and in industry.

Its theories and research findings often seemed to bring further oppression to relatively powerless and marginalized groups (women, ethnic minorities, working class people, and those of nonnormative sexual orientation), and this operated partly through the study of human phenomena in socially decontextualized laboratory environments, since experiments ignored the real-world contexts which, it was argued, give human conduct its meaning. There was a move to attend to this social context, as well as to explore human phenomena from the perspective of psychology's "subjects" themselves rather than privilege the perspective and voice of the relatively powerful researcher. These concerns encouraged social psychologists to embrace the ideas already flourishing in neighboring disciplines, including micro-sociology, and also fed into the burgeoning call to recognize qualitative research methods as legitimate and fruitful for the discipline of psychology.

EXISTENTIAL-PHENOMENOLOGICAL PSYCHOLOGY

This approach to psychology is inspired by the philosophical tradition developed by thinkers such as Buber, Kierkegaard, Nietzsche, Heidegger, Gadamer, de Beauvoir, Sartre, Marcel, Merleau-Ponty, and Levinas. Existential-phenomenology seeks to develop an in-depth, embodied understanding of human existence. It challenges approaches in psychology and psychiatry that view human beings in a reductionistic manner.

The program distinguishes itself by using this philosophical tradition as a foundation for psychotherapy and growth, and as a source of insight into the richness and diversity of human psychological experience. Existential-Phenomenological Psychology is humanistic in that it challenges the modern tendency to interpret the human condition through a set of narrow technological lenses. It engages with and appreciates the wisdom accumulated by the rich traditions of reflection on the human condition in the social sciences and humanities. It deepens our understanding of the experiences and perspectives of others through its focus upon the meanings that we make in our lives and the choices that are reflected in our understandings and actions.

The phenomenological dimension nourishes an openness to understanding the lives and needs of others by helping us to identify and set aside our theoretical and ideological prejudgments as we approach our work as therapists. Finally, the existential-phenomenological approach is ethical in recognizing that the fundamental characteristic of being human is to be responsible to others. According to J. H. van den Berg (1972), the development of phenomenological psychology began in

1894. At that time, Wilhelm Dilthey analyzed the methods of psychology and concluded that they had been derived from the physical sciences (e.g., physics, chemistry, biology, etc.) and were thus insufficient for a science of human beings (i.e., psychology). As van den Berg put it: Like the physicist, the psychologist tried to dissect the object of his studies; he tried to isolate the elementary factors of mental life to reconstruct actual mental life with these elementary factors. While it was obvious, even then, that . . . an all-embracing psychology, could not be achieved this way, Dilthey was the first to point this out In his opinion, the essential characteristic of the psychic aspect of human life is that it is . . . not a collection of elements. The psychologist . . . must try to find a method that originates from the subject itself. (pp. 126-127) As psychology continued to grow and develop since the time of Dilthey, more and more psychologists came to see the need for a new approach to psychology. For example, the Gestalt psychologists maintained that consciousness

EXISTENTIAL-PHENOMENOLOGICAL PSYCHOLOGY

cannot be broken down into discrete components and retain their meaningfulness (Lahey, 1989). That is, in order to attain a comprehensive understanding of a person's conscious awareness of the world, psychologists cannot simply put together a group of previously abstracted parts. Humanistic psychologists, such as Carl Rogers and Abraham Maslow, reacted against the movement in psychology to understand human behavior as nothing but the product of some elemental determining factor, such as unconscious drives or the law of stimulus-response.

However, I know of no tradition that has contributed more to the advance of psychology as an inquiry into human experience and behavior without resorting to impersonal logic, a sloppy eclecticism, or a theoretically and methodologically weak qualitative approach than the European (i.e., existential) phenomenological tradition. Phenomenological psychology has also continued to grow and develop since the time of Dilthey. Psychiatrists and psychologists such as Ludwig Binswanger, V. E. von Gebsattel, Erwin Straus, E. Minkowski, Aron Gurwitsch, Alfred Schutz, Ernest Schachtel, Medard Boss and many others contributed to phenomenological psychology's early development.

Seattle University, Saybrook University, The University of Dallas, Sonoma State University, The Michigan School of Professional Psychology, Point Park University, and the University of West Georgia, as well as explicitly phenomenological journals, such as the *Journal of Phenomenological Psychology*, *Phenomenology and Practice*, *The Indo-Pacific Journal of Phenomenology*, the *Humanistic Psychologist*,

The Journal of Humanistic Psychology, and *Phenomenology and the Cognitive Sciences*. However, many psychologists, if they are familiar with phenomenology at all, often misunderstand the philosophical-anthropological fundamentals of phenomenological psychology and phenomenological methodology.

Take any introduction to psychology text and search through it for an introduction to phenomenological psychology. I can almost guarantee that you will not find existential-phenomenology mentioned in the book at all. At best, you may find Viktor Frankl and/or Rollo May briefly mentioned under a section entitled "Humanistic Psychology."

My intention in writing this book is to provide a very brief introduction to existential-phenomenological psychology that instructors might use as a teaching tool for undergraduate or graduate

students. I will attempt to fashion the contents of the book according to the issues that I have experienced to be so often wondered about by students during my own years as a student of phenomenological psychology. It is my hope that this text will be resource for the reader to begin the process of becoming acquainted with phenomenological language.

In chapter one, I briefly argue in favor of the need for phenomenology by exposing some of the difficulties inherent to the predominant philosophical-anthropological viewpoints in Western thought. Chapter two lays out the most fundamental aspects of the phenomenological approach to data analysis and provides examples of phenomenological research results taken from the psychology of verbal aggression.

Chapter three demonstrates how a descriptive-interpretive viewpoint like existential-phenomenology can be used to clarify the central "object" of study in psychology: human existence. Chapter four, What Phenomenology is Not, has been included to dispel any misconceptions the reader might have or come across regarding what phenomenology is.

is large in the sense that its aim is to provide a way of thinking about and approaching psychology that differs radically from what has become common knowledge in the field. Too much time is wasted looking for how "the brain creates" mental processes—or worse, where the mind resides in the brain—despite the fact that these kinds of ideas disintegrate under the scrutiny of disciplined reflection and philosophic analysis. It seems to me that human beings are increasingly interpreting their lives in reductionistic terms as psychology grows in popularity.

CO-OPERATIVE ENQUIRY

Like any scientific research, psychological enquiry has the following goals: description, prediction, explanation, and control of behaviour, and application of knowledge so generated, in an objective manner. Let us try to understand the meaning of these terms. Description : In a psychological study, we attempt to describe a behaviour or a phenomenon as accurately as possible. This helps in distinguishing a particular behaviour from other behaviours. For example, the researcher may be interested in observing study habits among students.

Study habits may consist of diverse range of behaviours, such as attending all your classes regularly, submitting assignments on time, planning your study schedule, studying according to the set schedule, revising your work on a daily basis etc. Within a particular category there may be further minute descriptions. The researcher needs to describe her/his meaning of study habits. The description requires recording of a particular behaviour which helps in its proper understanding.

Prediction : The second goal of scientific enquiry is prediction of behaviour. If you are able to understand and describe the behaviour accurately, you come to know the relationship of a particular behaviour with other types of behaviours, events, or phenomena.

You can then forecast that under certain conditions this particular behaviour may occur within a certain margin of error.

For example, on the basis of study, a researcher is able to establish a positive relationship between the amount of study time and achievement in different subjects. Later, if you come to know that a particular child devotes more time for study, you can predict that the child is likely to get good marks in the examination. Prediction becomes more accurate with the increase in the number of persons observed.

Control : If you are able to explain why a particular behaviour occurs, you can control that behaviour by making changes in its antecedent conditions. Control refers to three things: making a particular behaviour happen, reducing it, or enhancing it. For example, you can allow the number of hours devoted to study to be the same, or you can reduce them or there may be an increase in the study hours. The change brought about in behaviour by psychological treatment in terms of therapy in persons, is a good example of control.

Application : The final goal of the scientific enquiry is to bring about positive changes in the lives of people. Psychological research is conducted to solve problems in various settings.

STEPS IN CONDUCTING SCIENTIFIC RESEARCH

Science is not so defined by what it investigates as by how it investigates. The scientific method attempts to study a particular event or phenomenon in an objective, systematic, and testable manner. The objectivity refers to the fact that if two or more persons independently study a particular event, both of them, to a great extent, should arrive at the same conclusion. For instance, if you and your friend measure the length of a table using the same measuring device, it is likely that both of you would arrive at the same conclusion about its length.

selects a theme or topic for study. Then s/he narrows down the focus and develops specific research questions or problems for the study. This is done on the basis of review of past research, observations, and personal experiences. For example, earlier you read that a researcher was interested in observing the study habits of students. For this purpose, s/he may identify different facets of study habits first, and then decide whether s/he is interested in study habit shown in the class or at home. In psychology we study a diverse range of problems related to behaviour and experiences. These problems may be related to

- (a) understanding our own behaviour (for example, how do I feel and behave when I am in a state of joy or grief? How do we reflect on our own experiences and behaviour? Why do we forget?);
- (b) understanding other individual's behaviour (for example, Is Abhinav more intelligent than Ankur? Why is someone always not able to complete her or his work on time? Can the habit of smoking be controlled? Why do some people suffering from chronic illness not take medicines?);
- (c) group influences on individual behaviour (for example, why does Rahim spend more time meeting with people than doing his work?, Why does a cyclist perform better when cycling before a group of persons than when cycling alone?);
- (d) group behaviour (for example, why does risk-taking behaviour increase when people are in a group?), and organisational level (for example, why are some organisations more successful than others? How can an employer increase the motivation of employees?). The list is long and you will learn about these various facets in subsequent chapters. If you are inquisitive, you can write down a number of problems which you may like to probe. After identification of the problem, the researcher proceeds by developing a tentative answer of the problem, which is called hypothesis. For example, based on the earlier evidence or your observation, you might develop a hypothesis 'greater is the amount of time spent by children in viewing violence on television, higher is the degree of aggression displayed by them'. In your research, you shall now try to prove whether the statement is true or false.

Collecting Data : The second step in scientific research is to collect data. Data collection requires developing a research design or a blueprint of the entire study. It requires taking decisions about the following four aspects:

- (a) participants in the study,
- (b) methods of data collection,
- (c) tools to be used in research, and
- (d) procedure for data collection. Depending upon the nature of the study, the researcher has to decide who would be the participants (or informants) in the study.

The participants could be children, adolescents, college students, teachers, managers, clinical patients, industrial workers, or any group of individuals in whom/ where the phenomenon under investigation is prevalent. The second decision is related to the use of methods of data collection, such as observation method, experimental method, correlational method, case study, etc. The researcher needs to decide about appropriate tools (for example, interview schedule, observation schedule, questionnaire, etc.) for data collection. The researcher also decides about how the tools need to be administered to collect data (i.e. individual or group).

This is followed by actual collection of data.

Drawing Conclusions : The next step is to analyse data so collected through the use of statistical procedures to understand what the data mean. This can be achieved through graphical representations (such as preparation of pie-chart, bar-diagram cumulative frequencies, etc.) and by the use of different statistical methods. The purpose of analysis is to verify a hypothesis and draw conclusions accordingly.

Revising Research Conclusions : The researcher may have begun the study with a hypothesis that there exists a relationship between viewing violence on television and aggression among children.

OVERVIEW OF CO-OPERATIVE INQUIRY

CI is a kind of action research, aimed at acquiring knowledge about human experience through action and joint reflection. The most comprehensive guide is Heron (1996). (Additional sources include Heron & Reason, 2001; Reason, 1994b, 1988d, 1994c; Reason & Bradbury, 2001; Reason & Heron, 1999; Reason & Rowan, 1981.) In its fullest form the researcher-subject distinction disappears and all participants are both co-researchers and co-subjects. Its defining features are (Heron, 1996, pp. 19-20).

PARADIGMATIC CONTROVERSIES

On the matter of hegemony, or supremacy, among postmodern paradigms, it is clear that Geertz's (1988, 1993) prophecy about the "blurring of genres" is rapidly being fulfilled. Inquiry methodology can no longer be treated as a set of universally applicable rules or abstractions. Methodology is inevitably interwoven with and emerges from the nature of particular disciplines (such as sociology and psychology) and particular perspectives (such as Marxism, feminist theory, and queer theory). So, for instance, we can read feminist critical theorists such as Olesen (Chapter 8, this volume) or queer theorists such as Gamson (Chapter 12, this volume), or we can follow arguments about

teachers as researchers (Kincheloe, 1991) while we understand the secondary text to be teacher empowerment and democratization of schooling practices. Indeed, the various paradigms are beginning to "interbreed" such that two theorists previously thought to be in irreconcilable conflict may now appear, under a different theoretical rubric, to be informing one another's arguments.

A personal example is our own work, which has been heavily influenced by action research practitioners and postmodern critical theorists. Consequently, to argue that it is paradigms that are in contention is probably less useful than to probe where and how paradigms exhibit confluence and where and how they exhibit differences, controversies, and contradictions. Major Issues Confronting All Paradigms In our chapter in the first edition of this Handbook, we presented two tables that summarized our positions, first, on the axiomatic nature of paradigms (the paradigms we considered at that time were positivism, postpositivism, critical theory, and constructivism; Guba & Lincoln, 1989). Since publication of that chapter, at least one set of authors, John Heron and Peter Reason, have elaborated upon our tables to include the participatory/cooperative paradigm (Heron, 1996; Heron & Reason, 1997, pp. 289-290).

Thus, in addition to the paradigms of positivism, postpositivism, critical theory, and constructivism, we add the participatory paradigm in the present chapter (this is an excellent example, we might add, of the hermeneutic elaboration so embedded in our own view, constructivism). Our aim here is to extend the analysis further by building on Heron and Reason's additions and by rearranging the issues to reflect current thought.

Our issues may be important because new or extended theoretical and/or field-oriented treatments for them are newly available and reflexivity are two such issues. This chapter reprises the original but adds the axioms of the participatory paradigm proposed by Heron and Reason (1997). It deals with seven issues and represents an update of selected issues first presented in the old "Voice" in the 1994 version of this book. It has been renamed "inquirer posture," and a redefined "voice" has been inserted in the current.

In all cases except "inquirer posture," the entries for the Participatory paradigm are those proposed by Heron and Reason; in the one case not covered by them, we have added a notation that we believe captures their intention. We make no attempt here to reprise the material well discussed in our earlier Handbook chapter. Instead, we focus solely on the issues in: axiology; accommodation and commensurability; action; control; foundations of truth and knowledge; validity; and voice, reflexivity, and postmodern textual representation. We believe these seven issues to be the most important at this time. While we believe these issues to be the most contentious, we also believe they create the intellectual, theoretical, and practical space for dialogue, consensus, and confluence to occur. There is great potential for interweaving of viewpoints, for the incorporation of multiple perspectives, and for borrowing or bricolage, where borrowing seems useful, richness enhancing, or theoretically heuristic. For instance, even though we ourselves social constructivists/constructivists, our call to action embedded in the authenticity criteria we elaborated in Fourth Generation Evaluation (Guba & Lincoln, 1989) reflects strongly the bent to action embodied in critical theorists' perspectives. And although Heron and Reason have elaborated a model they call cooperative paradigm, careful reading of their proposal reveals a form of inquiry that is post.

POSITIVE, POSTMODERN, AND CRITICALISM IN ORIENT

As a result, the reader familiar with several theoretical and paradigmatic strands of research will find that echoes of many streams of thought come together in the extended table. What this means

is that the categories, as Laurel Richardson (personal communication, September 12, 1998) has pointed out, "are fluid, indeed what should be a category keeps altering, enlarging." She notes that "even JS [we] write, the boundaries between the paradigms are shifting." This is the paradigmatic equivalent of the Geertzian "blurring of genres" to which we referred earlier.

Our own position is that of the constructionist camp, loosely defined. We do not believe that criteria for judging either "reality" or validity are absolutist (Bradley & Schaefer, 1998), but rather are derived from community consensus regarding what is "real," what is useful, and what has meaning (especially meaning for action and further steps). We believe that a goodly portion of social phenomena consists of the meaning-making activities of groups and individuals around those phenomena. The meaning-making activities themselves are of central interest to social constructionists/constructivists, simply because it is the meaning-making/sense-making/ attribution activities that shape action (or inaction). The meaning-making activities themselves can be changed when they are found to be incomplete, faulty (e.g., discriminatory, oppressive, or non liberatory), or malformed (created from data that can be shown to be false).

WHAT IS SIGNIFICANT INDIAN PARADIGMS ON PSYCHOLOGICAL KNOWLEDGE: YOGA, BHAGAVAD GITA, BUDDHISM, SUFISM, AND INTEGRAL YOGA. SCIENCE AND SPIRITUALITY (AVIDYA AND VIDYA). THE PRIMACY OF SELF-KNOWLEDGE IN INDIAN PSYCHOLOGY?

SIGNIFICANT INDIAN PARADIGMS ON PSYCHOLOGICAL KNOWLEDGE: YOGA, BHAGAVAD GITA, BUDDHISM, SUFISM, AND INTEGRAL YOGA. SCIENCE AND SPIRITUALITY (AVIDYA AND VIDYA). THE PRIMACY OF SELF-KNOWLEDGE IN INDIAN PSYCHOLOGY

Significant Indian paradigms on psychological knowledge: Yoga

PSYCHOLOGICAL KNOWLEDGE OF YOGA

"Is there therapy in the Vedas?" I was a bit taken aback by this inquiry from a young and dedicated yoga practitioner. He had been struggling for years with psychological problems. Although he had embraced a traditional path of yogic transformation, he found the help he needed in a more modern self-help process based on contemporary psychology. As I thought about his inquiry, however, the answer seemed obvious. Rich in a tradition of intact family and community support, those born in traditional India did not need to rely on specialists to sort out mental afflictions caused mostly by social dysfunction. Classical Indian philosophy, especially its traditions of yoga, does, however, have detailed information on the nature of the mind.

Inspired by my young friend's question and desiring to organize that information in a relevant way to help address the mental challenges so many people face today, I categorized the basic tenets of yoga psychology into five broad principles:

1. The mind is malleable.
2. There is a correlation between the form the mind assumes and how one feels.
3. The mind is swayed by the power of three main factors—karma, environment, and actions.
4. By controlling the form or mode the mind takes, one can substantially influence how one feels.

5. Full satisfaction can ultimately only be achieved by transcending the mind and realizing the true self.

The mind, like any mechanism, can be used more effectively when one knows its workings. This is especially important as the proper use of the mind is the basis of self-fulfillment. Yoga psychology thus speaks to the most important of all human aims: true happiness.

THE BASIC PRINCIPLES OF YOGA PSYCHOLOGY:

ONE: THE MIND IS MALLEABLE.

Subtle things are often described in more concrete ways to help us understand them. In the school of Yoga the mind is thus often described as supple, almost like clay, in that it can be easily molded and that external influences make indelible impressions

The significance of this description of the mind as supple (*Principle One*) is the correlation between the shape the mind assumes and one's accompanying moods (*Principle Two*) and that by understanding the main factors by which the mind is molded (*Principle Three*) one can influence how one feels (*Principle Four*). Most important, by this understanding, one can learn to shape the mind as a vehicle for its own transcendence and attain ultimate satisfaction (*Principle Five*).

TWO: THERE IS A CORRELATION BETWEEN THE FORM THE MIND ASSUMES AND HOW ONE FEELS.

Like everything in the world, the mind is composed of a combination of three modes of nature—*sattva guna* (goodness), *raja guna* (passion) and *tamo guna* (ignorance)—which are in flux. These subtle strands of matter, which are the elemental substrata of creation, also have specific intrinsic characteristics with particular symptoms and effects. Because there is a direct correlation between the modes of nature and how one feels, by identifying the present form or mode of the mind, one can also comprehensively understand its influence.

THREE: THE MIND IS SWAYED BY THE POWER OF THREE MAIN FACTORS—ONE'S KARMA, ONE'S ENVIRONMENT, AND ONE'S ACTIONS.

The modes of nature are constantly competing within the mind for influence. A particular mode gains prominence by its association with one of three factors: the weight of one's karma, the nature of one's environment, and the tenor of one's actions. How each affects the mind is comprehensively described in classical Indian thought.

1. The positive effect of karma (destiny) on consciousness is described in three basic ways: A. By understanding the message of destiny: Destiny is the language of God. Each event we experience is the Divine in the form of time (*kala*) telling us something essential about ourselves to help us grow. B. By understanding the proper response to destiny: *Sastra* (Indian sacred texts) also describes the appropriate response to each circumstance of destiny to ensure the healthiest development of the mind. C. By understanding how to align oneself with our innate nature born of destiny: Our basic nature is composed of latent impressions in the subconscious (*samskaras*) posited there at birth as a result of karma. *Sastra* describes the science of living in harmony with one's nature, which is the foundation of a peaceful mind.
2. The subtle effects of the diverse forms of the *environment* on consciousness are described by a thorough classification of the various objects of perception (sights, sounds, and so on) into

a gradation of modes that shape the mind according to their influence. For example, music within a specific mode can move the mind accordingly, either towards lethargy (music in the mode of ignorance), restlessness (music in the mode of passion), or peacefulness (music in the mode of goodness). All objects of perceptions can similarly be classified with predictable affects on the consciousness. Similarly, the subtle effects of the diverse forms of *action* are classified according to motive and understanding with their corresponding influence on the mind. For example, if one acts for self-purification or just adheres to moral or spiritual principles (actions in the mode of goodness) one's mind becomes more lucid, increasingly peaceful, and strong in will, the symptoms and effects of goodness. This understanding of how actions influence the mind also leads to a basic understanding of *dharma*. *Dharma* is the correct choice in any circumstance to ensure the healthiest affect on the mind. This very subtle science of prescribed action (*dharma*) is elaborately described in *sastra*.

FOUR: BY CONTROLLING THE FORM OR MODE OF THE MIND, ONE CAN SUBSTANTIALLY INFLUENCE ONE'S DESIRES AND FEELINGS.

All forms of therapy and self-help deal with guiding one to a greater self-awareness and personal satisfaction. By offering a system that accurately describes the nature of the mind, including a description of the internal and external factors that influence it, Classical Indian philosophy contributes substantially to the science of mental transformation.

FIVE: FULL SATISFACTION CAN ULTIMATELY BE ATTAINED ONLY BY RISING ABOVE THE MIND AND EXPERIENCING THE REAL SELF.

As the material mind is not the true self, no matter how much one transforms the mind to conform to higher forms of nature, perfect mental satisfaction will evade one for the following reasons:

1. The pleasure experienced by the mind is ultimately *superficial*, a joy experienced by identifying with something external to the self. Seeking such pleasure is akin to a person enjoying the pleasure of a dream. It is also a form of happiness that is *temporary* and therefore *full of duality*. Duality means that alongside this pleasure – which is connected with a false sense of self – there must also be the distress of pleasure lost when the body ends.

In this regard there is a tradition of *Sankhya* (analysis) that identifies all 24 material elements, including the mind, for the purpose of isolating the eternal or spiritual self for the attainment of happiness that is *real, eternal, and non-dual*.

Although yoga promotes an integrated, peaceful mind, it is not meant to be an end in itself, but a means to stabilize the mind for its highest purpose—realization of a higher state of consciousness. This is classically achieved through the practice of three core paths—work (*karma-yoga*), knowledge (*jnana-yoga*), and devotion (*bhakti-yoga*).

THE FUNDAMENTAL NATURE OF THE MIND

To understand the mind properly a basic understanding of its function is essential. One therefore has to be familiar with its context or purpose in the cosmos. In *Yoga, Sankhya*, and much of *Vedanta*, this world is described as pure awareness (*purusa* or soul) entangled or misidentified with matter (*prakrti*). Although the ultimate beginning of this dilemma is not a major concern for most, the immediate cause of this unwholesome juncture is; Out of egotism when the soul rejects its pure state

of selfless awareness, its consciousness is projected on a particular field of matter called the body (which includes the mind). As the changes in one's life that evoke duality and fear, such as disease and death, are happening in the body, not the true self, this unnatural and temporary state of identification is the root suffering. Awakening from it, or emancipation (*moksa*), is thus life's ultimate objective.

In context of this cosmic paradigm, the mind, called the *citta*, is the first sheath or covering of the soul. It functions as an instrument whereby the soul (*purusa*) enveloped in matter can either view the world to serve the false self (and suffer) or the pure self (and feel fulfilled). *Bhagavad-gita* thus aptly describes this function in the simple duality as the mind being either the friend or enemy of the soul. Similarly, the *Yoga Sutr*s describe thoughts born of the mind as either unhealthy (*klistha*) or healthy (*aklistha*).

To fulfill this dual role, the mind has different functions of thought. Although different schools ascribe slightly different roles to the different divisions of the mind, there is a basic agreement that the mind has three essential functions of thought:

1. manas – impulsive synthesis and response (initial categorization of all phenomena received through the senses and one's spontaneous like or dislike of them)
2. buddhi – reflective examination (judgment and will)
3. ahankara – relational response (self-identity and self-conceit)

Any system of transformation, whether to improve basic mental health or to achieve self-realization, is based on an understanding of at least some facsimile of these divisions.

Once the mind categorizes an object through a combination of these three functions of thought—our feelings, judgment, and sense of relationship—an impression of that object is imbedded within the mind. These latent impressions, called *samskaras*, created both i

this life and the past, determine how we view, feel, and respond to the world. They are the single most important factor in over-all well-being.

The first function of any system of self-improvement is thus to help one judge whether one's present thoughts based on these latent impressions represent the true nature of things. It then helps one create a more accurate perception through the tools available from that system.

THE HEALTHY AND UNHEALTHY MIND

As mentioned, the nature of the mind is the *samskaras* imbedded within it. We are born in a basic mental condition due to such *samskaras* carried from past lives and also face certain conditions and events in life that foster further *samskaras*.

Our formative years, where *buddhi* (intelligence) is underdeveloped, especially fashions the basis of one's mental health. *Buddhi* functions as a medium between the information coming through the senses and the final impression such data leaves on the consciousness. In other words, intelligence functions to translate our experiences in a reasonable way before they make impulsive and unhealthy *samskaras*. A child is thus especially susceptible to distorted impressions and even trauma because of this inability to digest his or her experiences by proper analysis into reasonable

memories. Stable parents, who affectionately monitor their child to protect him or her from such stirring events, and who deal properly with them, instill good *samskaras* in their child. Good *samskaras* mean impressions that reflect the true nature of things and produce thoughts that help one grow. Such parents especially provide a nurturing environment. Deep impressions of affection in the mind enable one to see the world with promise and to feel secure even in challenging circumstances. Bereft of such memories, one is prone to depression.

A child also needs reasonable boundaries set by the parents. Without a relatively fixed world set by the protective figure, the child lives in a world of flux determined by his whims and demands. As a result, impressions of anxiousness are imbedded in the child's mind, making him susceptible to excessive anxiety as he grows up to face a world of challenge and change.

Parents are the most important factor in the development of a strong mind. Thus a culture that is not structured to facilitate appropriate nurturing and reasonable boundaries molded by strong traditions of child rearing and community support will produce in various degrees mental instability, even if not at the level of trauma. Although the foundations of mental health are set in the formative years, it is important to remember that the mind is malleable. With the proper process of transformation, mental health can be attained at any stage of life.

ATTAINING MENTAL HEALTH

Especially in the modern world, people find themselves in societies where the support of community and family has been substantially eroded. Much of modern society thus relies on specialists in therapy and self-transformation to attain good mental health. Although sound mental health was integral to traditional Indian society and therapy as a specialized field dealing with mental disorders was virtually non-existent, still within the scope of yogi knowledge there is a wealth of in-depth information on the workings of the mind, including knowledge applicable to restoring mental health. Some of that knowledge was alluded to in the beginning of this article when the basic principles of yoga psychology were described, especially the three factors by which the mind is swayed—our karma, the environment, and our actions. Each of these will now be discussed in more depth:

KARMA AND THE MIND

Karma is a powerful factor in influencing the mind. What comes to us in our daily lives by destiny is often disconcerting. Powerful mental states may also suddenly arise as a result of past actions. Due to karma we are also born with a set mental nature, which conditions the mind. Our response to these three manifestations of destiny is the main factor in forming our mental state.

Practically all classical Indian schools of thought accept destiny as an eternal moral order, a force to help us grow provided we comprehend the message it bears and respond properly. *Sastra*, to a large degree, is a compendium of archetypal stories of destiny with lessons on how to understand and respond to various circumstances. That all tribulations of destiny are filled with messages of self-transformation is attested to by the fact that most individuals would not trade the difficulties they underwent if they had to also relinquish the valuable lessons they learned from them. According to yoga psychology, optimum mental health cannot be achieved without some connection to a tradition of knowledge that teaches one to understand and respond to each situation in life in a way that molds one's mind towards goodness.

Although we can substantially change our nature by guidance and self-discipline, we are still born with a certain basic karmic nature. Part of that nature includes inborn occupational proclivities, for instance the longing to be creative, make money, or become learned. Another part of our psyche carries innate social tendencies such as the degree of our detachment or attachment to worldly life. If unhealthy attachments are pronounced, they cannot be transcended by will power alone, nor is it healthy to do so.

Repression causes frustration and anger, which molds the mind towards ignorance, making one susceptible to the result of that mode: inactivity and depression. *Sastra* thus helps identify one's occupational and social proclivity and prescribes suitable duties based on those inclinations, such as recommendations for career and marriage. Only by the regulation of strong attachments, and not by the unrestricted indulgence or thoughtless repression of them, both which degrade the mind, can one be elevated to a higher state of mental well-being.

Optimal mental health is thus very hard to achieve without carefully understanding one's nature and engaging it properly.

ENVIRONMENT AND THE MIND

Bhagavad-gita confirms the importance of the environment in molding the mind towards goodness when it deems the knowledge found in the fourteenth chapter, where the modes of nature are comprehensively analyzed, best of all. Traditional Indian culture, ideally ordered in goodness, was itself influenced by this knowledge. Thus just living in such a society, where many aspects of life were carefully guided by this knowledge, from the objects of sound (music) and sight (art) to moral behavior, was therapeutic.

Although today one has little access to such an environment, still everyone has at least some control over his or her immediate surroundings. For example, the parts of the day that are in different modes, are usually within one's rule. Thus if we simply wake early, just before and around sunrise which is the time of the day substantially in the form of *sattva guna* (goodness), the mind will be given a significant boost towards goodness. Of course, the factors that influence the mind are numerous, but even such a simple adjustment of taking avail of the early morning hours will substantially engender peacefulness and clarity of mind.

All five objects of the senses (sight, sound, touch, smell, and taste) can manifest in different modes and thus everything from our diet to the people we associate with, from the places we frequent to our level of cleanliness can be molded in a way to influence the mind to a higher state of well-being. Those concerned with strong inner well-being, whether to make an unhealthy mind healthy for the purpose of general contentment, or to make the healthy mind more fit to facilitate meditation, must know the science of how the environment affects the consciousness.

ACTIONS AND THE MIND

There are three groups of action geared for positive transformation: actions with an innate spirit of attachment, but restrained by regulation (*karma-yoga*), restrained actions (*jnana*), and dedicated actions (*bhakti*). For the sake of discussing action in terms of how it affects the supple mind, I have divided action into four categories. The three groups of action above will be explored within those categories

1. Dharma

2. Programming
3. Spiritual practice in general
4. The path of devotion (Bhakti)

HOW ACTIONS AFFECT THE MIND

Before discussing the four categories of action in relation to the mind, it is helpful to review the mechanics of how information from the senses and one's response to it create the general tenor of one's mind:

Information entering the mind through the senses makes latent impressions called *samskaras* that form one's basic psychological make-up. *Samskaras* are imprints in the subconscious that push to be filled or not filled with the same experiences that caused them. They can also be called attachments, latent desires, or memories of pleasures. Based on those *samskaras*, one responds to future data by ascribing some feeling (like or dislike) towards it. As a result one is impelled to once again act, to have new experiences and thus either create additional *samskaras*, or strengthen old ones. In either case, the tenor of the mind is altered.

For example, if one drinks alcohol and becomes gladdened, a memory of that particular pleasure, a *samskara*, is imbedded in the psyche. The desire for intoxication thus becomes part of one's psychology. Although that imprint may remain latent (in that one may not always feel like drinking) when that *samskara* is activated by some circumstance, for example going to a party where alcohol is served, one is impelled to drink. In this way, a further imprint for drinking is imbedded in the psyche, increasing one's desire for alcohol and also the likelihood of drinking in the future. In other words, a single act and the accompanying experience can entangle the soul in a continual cycle of the creation and fulfillment of impulses. Within this karmic circle the *samskara* at the root of the initial action is then perpetually strengthened so that a predominant psychological nature is formed.

It can't be stressed enough how important properly translating the information we receive through the senses is, as the *samskara* made by sense data is ultimately determined by one's interpretation of it. In other words, the very same information can produce imprints that foster either enlightening or degrading thoughts (and consequent actions) depending on how such data is computed.

Pertaining to this subject, the role of *buddhi*, or intelligence, as the function of the mind with the capacity to properly digest or comprehend information has already been discussed. Properly comprehended or digested sense data means understanding the true nature of things. This correlation between understanding reality and mental health and the parallel between ignorance and suffering is at the core of yoga psychology. This connection is also not foreign to most schools of psychological therapy where most fears, phobias, anxieties, and mood swings are not considered fundamental conditions of reality, but mistaken conceptions of it, the only difference being the differing methods stressed to bring one to a higher level of cognition. Most schools also recognize the transforming or therapeutic affect of bringing one to a stage appropriate action based on higher cognition and the positive affect that has on the mind.

In conclusion, actions have a very influential affect on the condition of the mind, and inspire positive mental transformation when they are in response to a solid understanding of the world. All four categories of action are thus based on producing healthy imprints related to an understanding of the true nature of objects and situations.

PSYCHOLOGICAL KNOWLEDGE OF BHAGWAT GEETA

Spoken and written commentary on Bhagavad Gita, the distilled spiritual essence of Vedas and Upanishads, is aplenty. Mahatma Gandhi was quoted as saying that whenever he had a problem Bhagavad Gita offered an answer and the solution. For a student of psychology Bhagavad Gita offers a valuable case study for lessons in psychotherapy – resolution of conflict and successful resumption of action from a state of acute anxiety and guilt laden depression that precipitated inaction.

This presentation makes a humble attempt to discuss the therapy process involved in Bhagavad Gita in which Lord Krishna helped the grief-stricken Arjuna through dialogue and discussion. The focus would be on the conflict and diagnosis of patient, the background setting of the situation, personality of patient, technique of therapy, underlying psychological concepts/ principles/theories, the Guru - Sishya concept, etc.

Bhagavad Gita is part of the great epic Mahabharatha, a widely popular mythological story in Hindu philosophy; part of Bhishma Parva, Gita is almost in its entirety the dialogue between two individuals, Lord Krishna (considered as incarnation of Bhagawa. Vishnu, Narayana) and Arjuna (the Pandava prince, Nara) in the battle field (war between the Pandavas and the Kauravas, the cousins, for control of the kingdom of Hasthinapura) of Kurukshetra. It has 18 yogas (chapters), with about 701 slokas (short poems), the first one being "Arjuna Vishada Yoga" (Sorrow of Arjuna) and the last one "Moksha Sanyasa Yoga" (Nirvana and Renunciation).

I would urge the reader to understand the Bhagavad Gita in whatever which way and wisdom he/she would like depending on their belief systems and cultural-religious background. A fiction story or a piece of history dating back to about 4000-5000 B.C. or part of mythology dictated by Sage Veda-Vyasa and written by Lord Ganesh! What is more important and relevant is.

NOT WHAT IT IS BUT WHAT TRANSPIRED

in those 18 chapters of Bhagavad Gita; the process and content of the dialogue; its usefulness as a model of counseling and possible contemporary application value to current day psychological therapies, specially, but need not be limited to, in the Indian context.

The fact of interest for the student of Psychology psychology lies embedded in the dialogue between these two slokas:

- Sishya the Aham Sadhi Mam Tvam Prapannam (I am your disciple, Guide me, Help me) [1] II chapter....3]rd Sloka
- Nasto mohah Smrtir labdha Tvat Prasadan mayachyuta Sthithosmi gata-Sandehaha Karishye Vachanam tava

XVIII chapter....73 ("Clouds" have cleared; my senses are back, all your gift with my doubts vanished, Ready to act as you direct) rd Slok The 3rd sloka of 2nd chapter is depiction of the helpless state of Arjuna praying Lord Krishna for help. The 73rd Sloka of 18th chapter is reflection of dissolution of anxiety, worry, depression and guilt and preparedness for action with confidence and vigor. Whatever transpired between the 3rd sloka of 2nd chapter and the 73rd sloka of the 18th chapter is the matter of scientific curiosity for every student of psychology as it resulted in the total relief from the distress.

NOW THE SCIENTIFIC QUESTIONS CAN BE:

- Do we have any lessons from this?
- Can we develop a model of therapy from these lessons?
- ? Relevance of this model to current day practice
- How useful this approach can be and in which problem?
- What could be the limitations of this approach?

Counseling/psychotherapy is essential and an integral component of psychiatric interventions in the management of a patient with psychological distress/disease. The psychotherapeutic models available are developed and imported from the western literature. The applicability and usefulness of these models in the Indian context was discussed with some skepticism keeping in mind the varying cultural, religious, spiritual, societal attitudes (broadly described as eastern/oriental culture) by psychiatrists in the past.[24] The Guru-Chela concept, as a model in psychotherapy, popularized by Dr. Neki gets widely debated in the Indian context. Eminent Indian psychiatrists and psychologists discussed and proposed Bhagavad Gita as a source and model to develop psychotherapeutic concepts suitable to Indian context. (Of course the eastern/oriental/Indianness of the 21st century Indian can be a matter of speculation and debate).

I. DHARMA

As discussed, knowledge of the true nature of things and responding to the world based on that understanding creates the best disposition of mind. The science of doing this is called *dharma*. In the introduction *dharma* was defined as: “The correct choice in any circumstances to ensure the healthiest affect on the mind is called *dharma*. This very subtle science of prescribed action (*dharma*) is elaborately described in *sastra*.” *Dharma* is subtle because it is prescribed according to one’s individual nature, which varies from person to person. In fact, it varies right from birth where a fraction of an almost unlimited stock of a person’s past karma, including strong *samskaras*, is funneled into one’s particular field of activities (the gross and subtle bodies).

Dharma is thus always done in careful consideration of one’s individual nature, although certain actions are obviously more universal prescriptions, such as *The Ten Commandments* or the *yamas* (moral restraints) of the *Yoga Sutras*. An example of this principle of *dharma* being prescribed according to one’s nature, and not universally applied, is the appropriate response to the objects of sex desire. Like all potential responses to pleasure, the first consideration is the degree of one’s attachment towards the object of that pleasure.

Thus if sexual attraction is at a depth where it cannot be transcended, then *dharma* is to act on that desire, but under careful regulation, in this case limiting the fulfillment of sex desire at the least to the sphere of marriage, if not solely for procreation. If the depth of one’s attachment is minimal, however, *dharma* is the opposite, renunciation of those desires. The same paradigm is applicable to all prescriptions of *dharma*—attachments that cannot be transcended have to be carefully worked through according to prescribed regulation. The result is also the same—the mind is favorably transformed by carefully doing one’s duty.

An especially important application of this model of action is the choice of suitable work.

Occupation is an activity that occupies most of our day and thus a key element in how the mind forms itself.

When our work is lined up with our inborn nature and done in the proper way, when it is *dharma*, the mind is positively transformed. When it is not, one is frustrated. Day after day tolerating boredom or frustration due to occupational work against one's nature can easily activate either a strong desire for unwarranted indulgence in sense pleasure or excessive inactivity. Unfortunately, such desires must be carried home for fulfillment often crimping in mode and time our ability to put our mind towards direct spiritual practice.

Positive mental transformation, for most, cannot be separated from a socio-occupational system designed to provide both meaningful work (*varna*) and an appropriate and supportive social status (*ashram*). Such a system, such as the social structure that was an ideal for Classical Indian society, was also best supported by a simple agrarian based economy. Its purpose was not only to supply suitable psychophysical occupational and social engagement, but to free one's time and energy for spiritual practices geared for direct mental transformation.

Although modern society is not particularly structured to support mental health or spiritual growth, and one often finds oneself in stressful occupational and social situations, one seeking to maximize mental and spiritual development cannot neglect a holistic approach, one that seeks, as far as possible, to align one's social and occupational life with one's psychophysical nature. In summary, there are two choices for incorrect action (*adharma*) and two choices for correct action (*dharma*):
Incorrect action 1: To impulsively indulge one's unhealthy attachments. Such action is in the mode of ignorance and molds the mind accordingly.

Incorrect action 2: To repress one's desires whimsically. By doing so one's mind is occupied further by those attachments leading to frustration, anger, and bewilderment. Repression thus also eventually molds the mind towards ignorance, the worst mode.
Correct action 1: To satisfy one's attachments by prescribed regulation. Regulation affords one the advantage of both the satisfaction and renunciation of desire. By prescribing conditions to fulfill desire, one not only thinks less of those desires, but avoids the foibles of repression. Regulation also means that beyond the limited prescription for enjoyment, one is renouncing passions, thus ruling them by goodness and gradually moving the mind towards that mode.

Correct action 2: To renounce the object of the senses by one qualified to do so. By renunciation at the level of true indifference, one attains the platform of dispassion, and quickly brings the mind to its most purified state. Suitable mentors must thus not only clearly know that one is not the body, but they must help people understand what the body is. If one is not able to reasonably assess a person's level of attachment, but is only able to highlight the duality between mind and body, action cannot be prescribed in a way that fosters a peaceful and functional mind, either for living in the world or for pursuing transcendence. Such guides must also be qualified to inspire and teach renunciation to gradually move people towards that goal.

II. PROGRAMMING

Regardless of one's level of renunciation, one can learn to program or condition the mind to give up bad habits and to develop good ones. This is described in the *Yoga Sutras* as consciously supplanting bad *samskaras* with good ones. To understand how programming works, one should first understand the duality between pleasure and happiness, that *samskaras* that may give momentary

pleasure, such as intoxication and fault-finding, also simultaneously mold the mind towards distress. Understanding this duality, one can then program the mind to supplant the *samskaras* impelling one to indulge in a bad habit by associating it with ones that highlight the suffering it causes. For example, one may give up smoking by regularly visualizing the distress caused by it, such as lung disease and the lack of charactersuch addictions reflect, so that eventually a healthy *samskara* of aversion (smoking is bad) supersedes the unhealthy imprint of attachment (smoking is good). As one can displace the root of a bad habit by creating a distressful imprint in the mind, one can also uproot a bad habit by nurturing another attachment that gives one more pleasure, but sits in opposition to that tendency. For instance, one can be attached to being truthful and then vow to never smoke. Every time one then desires to smoke, the desire for truthfulness is activated, overpowering the craving to smoke. Of course, this is provided that the *samskara* for honesty is deeper than the *samskara* for smoking, or whatever bad habit one is trying to overcome.

These are just simple examples to illustrate how the mind can be programmed or conditioned to change one's nature. They also illustrate the importance of integrity. Integrity means to make one's thoughts and actions one or integral with one's principles. A strong taste for honesty makes it so much easier to undergo the discipline required for transformation.

Without such integrity, our commitment to overcome bad habits will often be rationalized away. Yoga psychology is thus always accompanied by a culture that diligently programs honesty, by the values it stresses, the exemplars it promotes and the literature it recommends.

Again, although we may be at a disadvantage in the modern world where good *samskaras*, such as integrity, are generally not sufficiently cultured, it doesn't mean that we can't find practical means to program the mind to be true to our principles. For example, one can still consciously seek exemplars in character. Exemplars in character, those who have strong attachment to principles, are one of the most powerful ways to instill impressions of character, especially if one can develop a relationship of respect and service to such persons. We naturally try to give up habits that are antithetical to the lives of those we admire. One can also hear about such people, especially if they are saints of the past. Of course, the ability to subdue passions is also affected by the strength of the habit we are trying to control. When such imprints have become extremely deep by repeated reinforcement, they are recalled addictions. At that level they forcibly supersede good judgment and take a more concerted effort to overcome.

In that regard, the 12-step program is an apparently successful method of overcoming addictions. An interesting study would be an analysis of exactly how that is accomplished in terms of yoga psychology, especially in terms of programming. From those I have known in the midst of such programs, it is clear to me that it is an ingenuous way of superseding very deep, bad *samskaras* by strongly reinforcing and creating good ones, such as humility, integrity, the distress of bad habits, the pleasure of good habits, and respect for exemplars of non-addiction. I am especially intrigued by the spiritual aspect of the program. By admitting one's helplessness (the first step) and petitioning a higher power (the second step) one creates or reinforces the good *samskaras* of humility and dependence. Such qualities allow one to experience affection, which strikes against the root of all addiction—the lack of memory in the subconscious of nurturing that fosters depression and impels one to mistakenly fill that void of happiness with repeated sensual stimulation. To transform the mind it must be reconditioned. Yoga psychology, by describing how the mind works, offers a working model of how to positively program the mind.

III. SPIRITUAL PRACTICE (SADHANA)

The objective of yoga psychology is not just to stabilize the mind, but to perfect it. This was described in the introduction. "Yoga psychology deals with the transformation and stabilization of the mind, not as an end in itself, but as means to attain a higher state of consciousness beyond the mind where the *purusa*, or soul, imbibes in its own pure nature." To attain that state, however, the support of the mind is necessary. The mind is called *antar-karanam*, the internal instrument. Like all instruments, the mind requires tuning or sharpening to function best. To succeed in spiritual life, one must therefore gradually mold the mind to higher forms of cognition.

In terms of transforming the mind, we have already discussed the importance of properly structuring our environment and adhering to moral actions within our day to day lives. To achieve optimum transformation and ultimate transcendence, however, it is of utmost importance to reserve a time and place to exclusively engage with the mind for the purpose of transforming it. Such a prescribed exercise is called *sadhana*, or spiritual practice. The foundation of *sadhana* is meditation.

To understand how meditation transforms the mind, one first has to understand its goal – to bring the mind to its pure state. This state can be compared to the original condition of a perfectly tuned instrument where its maximum potential is realized. The mind thus functions best in *sattva*, the most wholesome state of matter. In other words, in *sattva* the discriminating ability of the mind is sharpened to the degree where the soul can perfectly distinguish itself from its encasement, the mind and body. In terms of this ability to foster true perception, this optimum state can also be compared to a properly formed and thoroughly cleansed lens.

Spiritual practice is thus the process of cleansing the mirror of the mind of its distortions, called *vrattis* or thoughts, especially those born of passion and ignorance, which like a distorted lens skew the soul's vision. Meditation accomplishes this by the practice of undeviating concentration on a single object of focus. By such focus for an uninterrupted and prolonged time, all other fluctuations of the mind, which distort the natural lucidity of *sattva*, are neglected and thus quelled, especially when that practice is accompanied by *vairagya*, a rigorous cultivation of dispassion towards those impulses.

IV. BHAKTI

So far we have discussed transformation based on individual effort. The path of *bhakti* adds the aspect of grace to our discussion, help beyond individual effort. Grace thus implies the conviction in a unique supremely potent and omniscient soul, a being with total power to direct the laws of nature and thus cleanse one's mind simply by grace. *Bhakti* as a process of transformation is thus the act of giving oneself to God in devotion and petitioning that grace.

Patanjali Muni indirectly alludes to the path of grace in the *Yoga Sūtras*. In the first chapter, he describes *isvara pranidhana* (surrender to the Lord) as an optional method of meditation and also outlines its main practice—chanting mantras such as *aum*, which are not only signifiers of the Lord, but non-different from Him and full of spiritual potency. In the chapter that follows, he outlines "surrender to the Lord" in a somewhat different context, as one of the six mandatory moral observances that are prerequisite for meditation. Also listed there are the different benefits of adhering to each of the six classic moral observances including *samadhi*, the benefit of perfectly practicing *isvara pranidhana*. *Samadhi*, full spiritual trance, is the goal of meditation. As "surrender to the Lord" is the lone moral observance paired with a spiritual result, and also the only object of meditation that is an active transformative agent, it is also logically the inferred choice for meditation. Commenting

on *isvara pranidhana*, Vyasa, the main commentator on the *Yoga Sutras*, directly confirms why “simply by the yogi’s longing, God bestows His grace upon the yogi. When this happens the fruit’s of samadhi becomes quickly available.”

Bhakti as a process of transformation in relation to grace as described in the *Yoga Sutras* thus works something as follows:

By repetition of the Lord’s names and thinking of their meaning, which is a call to surrender, devotion naturally arises in the heart. Imbued with devotion, the presence of the Lord is then naturally felt everywhere until thoughts of devotion pervade the mind. The Lord, in reciprocation, naturally bestows His grace upon such a devoted soul by awarding him or her *samadhi*, but without the same effort usually required to attain such a wholesome state. In this sense, the process of *bhakti* works through the transformation of the material mind as other processes do. Sri Caitanya, certainly one of the most prominent proponents of the *Bhakti* tradition, thus declares in the first verse of His seminal composition *Siksastakam*, “*ceto darapana marjanam*” –that chanting cleanses (*marjanam*) the mind (*ceto*), which is like a mirror (*darpanam*). In ways, this is a classical yogic description of attaining samadhi, where the material mind of the embodied soul regains its pure condition where the soul can be reflected on it without distortion, the stage before one transcends the corporeal sphere altogether.

Of course, how the mind recovers its pure condition on the path of *bhakti*, and how it does so in other processes, is also quite different. On the path of *bhakti*, real devotion, selfless devotion, is not just a mental or physical activity, but an expression of the soul. Thus unlike other paths, which work, so to speak, from the outside in, that is they deal directly with the transformation of mind as a way to achieve pure inner awareness, *bhakti* is the opposite. *Bhakti* is first a rousing of the soul with devotion that then purifies the mind. In other words, as consciousness flows through the sheaths of the conditioned soul to animate it, including the mind, when that consciousness is awakened to its true nature of selfless devotion, the mind is gradually transformed to more and more conducive states for higher realization. This transformation thus happens simultaneously as *bhakti* imbues the soul with devotion:

“Devotion, direct experience of the Supreme Lord, and detachment from other things—these three occur simultaneously for one who has taken shelter of the Supreme Personality of Godhead, in the same way that pleasure, nourishment, and relief from hunger comes simultaneously and increasingly, with each bite, for a person engaged in eating.” (*Bhag* 11.1.42). Obviously, the degree to which *bhakti* inspires the soul and transforms the mind depends on the purity of our practice and our level of devotion. Real transformative devotion is thus *rag bhakti*, where attachment (*rag*) to the Lord, not just obligation and duty, is the motivating force for our action.

Bhakti, action done with pure love for God, is thus a powerful transformative agent as it invokes grace, stirs the soul, and flows naturally away from egoism and exploitation, the core obstacles to yoga. In *Bhagavad-gita* it is thus deemed the best of transformative paths.

Summar Yoga psychology gives a practical, workable, and holistic paradigm for transformation, which thoroughly explains the effect of one’s nature, actions, environment and heartfelt devotion on the development of a healthy mind.

The prime source for my study of yoga psychology was the recently published “*The Yoga Sutras of Patanjali*” by Dr. Edwin Bryant, NorthPoint Press, which is not only a translation of the *Yoga Sutras*, but is a translation and commentary on all the major commentators on the *Yoga Sutras* as well. I

began this paper before the book was officially published, so I would like to personally thank Professor Bryant for sharing with me, in advance, some excerpts of his work. The author is not only an established academic, but a long time student and practitioner of yoga as well, which makes for an especially insightful and readable translation and commentary.

ii. Bhagavad-gita, 6.5

iii. Yoga Sutras 1.5

iv. Inherent in most systems of Indian yogic thought, and most methods of mental health, is the concept that distress lies not in reality, but in our perception of it, and thus mentors by carefully freeing us from ignorance also make us more mentally healthy.

v. An example would be a young child who has had experiences with his parents and thus develops a bad impression towards all authority and who then distrust all elders, even kind ones.

vi. Problems of restoring mental health were also dealt with in the social structure, including family and priests. Extremely serious mental problems were also dealt with by certain types of tantrics. *Bhagavad-gita*, 14.

vii. In Indian time there are 36 48-minute divisions called *muhurtas*. The *brahma muhurta*, the 48 minutes before sunrise, was considered the most conducive for spiritual life.

viii. Cleanliness is the object of sight in the mode of goodness and will naturally make one more peaceful and clear minded.

ix. Yoga is generally considered part of the path of *jnana*.

PSYCHOLOGICAL KNOWLEDGE OF BUDDHISM

Buddhist psychology is primarily about self-knowledge- finding out more about who you are, understanding your decisions, actions, thoughts, feelings, etc. It is an expression of the Delphic dictum *Know Thyself* and the injunction that transformative spiritual paths throughout time and geography have demanded as the central ingredient in authentic happiness. Buddhist psychology is 'radical,' as it aims to challenge your worldview (as all authentic spirituality and psychology does). It is radical in that it addresses the basis or foundation of our psychological functioning, our sense of who we are, and our relationships with others and with the world. As a result, the fruit of applying the psychological insights of the Buddha requires diligence, perseverance and discernment as they will naturally encounter the resistances and obstacles inherent in our conditioned nature.

It is not a coincidence that Buddhism finds itself so welcome in the western world since the last decades of the preceding century. While the appeal certainly includes those who have converted to Buddhism as a faith and have adopted the practices, liturgies and meditations of whatever form of Buddhism speaks to them, the more unique and far-reaching impact of Buddhism, as a psychology has taken place in academia and among clinical researchers, who have observed that the Buddhist understanding of consciousness, mind, behavior, motivation, personality and psychopathology bear a close resemblance to perspectives held in western psychology and psychotherapy.

While the Buddha was not a psychiatrist or psychologist in the formal sense of the word, the vast majority of his recorded teachings, are explicitly concerned with the sources of emotional suffering and their amelioration. No doubt there is much, much more to Buddhism than the psychology he

elucidates. Yet, an argument will be made that these more 'religious' elements, for the want of a better word, or possibly 'experience-far' aspects, are of appeal to those who seek a religious Buddhism, a Buddhism that provides for a level of faith and understanding that speaks to the needs of their heart, but which can be separated out, and set aside, for those who do not seek such a religious experience (possibly content with their own existing faith, or with none at all) but who rather wish to deepen their self-knowledge and happiness.

It is these experience-near or psychological Buddhism that speaks loudly in the West and which may be anticipated to be the legacy of the Buddhist encounter with the West.

Let's examine some of the confluences of Western and Buddhist psychology. There is certainly a high degree of overlap in goals and content areas of both disciplines that focus directly on understanding human behavior, the source or conditions for unhappiness and ways to reduce, attenuate or even eliminate such unhappiness. Indeed the Buddhist corpus has extensive psychological writings- very explicit and detailed- and not found in other religious traditions. Thus it is not surprising that some aspect of Buddhist psychology has been of interest to those professions in the west dedicated to alleviating human suffering: medicine, psychiatry, psychology, nursing, social work.

The professional journals for each of these disciplines have published so much scientific research (especially related to mindfulness practice) that to fully describe the studies would require a book in itself. The Dalai Lama has explicitly encouraged interaction between western disciplines to further establish links with science and clinical practice. The Mind and Life Institute is an expression of this venture of cooperation. Elements of Buddhist psychology have been integrated into psychotherapeutic practices for a variety of psychopathological conditions, including depression, anxiety, addiction and stress. Scientific writers from the entire range of clinical psychology and psychiatry, ranging from psychoanalysis to cognitive to behavioral to humanistic theory, have all addressed aspects of Buddhist psychology. Not surprising, the Buddhist traditions that have been of greatest appeal to western science and psychology have been those that appear to contain a higher proportion of experience-near aspects (Theravadin, Zen) because they carry much less religious baggage and more easily translated into Western concepts. Less impactful has been the teachings of Mahayana and Tibetan or tantric Buddhism which include a strong element of experience-far teachings and thus are more difficult to translate into concepts that are digestible by the western mind. Nevertheless, even these traditions reflect a more esoteric psychology that does find resonance in the West and which full certainly continue to attract significant interest.

Buddha was primarily an ethical teacher and reformer, not a metaphysician. He disliked metaphysical discussions devoid of practical utility. Instead of discussing metaphysical questions, which are ethically useless and intellectually uncertain, Buddha always tried to enlighten persons on the most important questions of sorrow, its origin, its cessation and the path leading to its cessation. The answers to these four questions constitute the essence of the Buddha's enlightenment. These have come to be known as four noble truths. They are:

- (a) Life is full of suffering (*Duhkha*),
- (b) There is a cause of this suffering (*Duhkha-samudaya*),
- (c) It is possible to stop suffering (*Duhkha-nirodha*),
- (d) There is a way to extinguish suffering (*Duhkha-nirodha-marga*).

The first noble truth is life full of suffering. The very essential conditions of life appeared to be fraught with suffering-birth, old age, disease, death, sorrow, grief, wish, despair, in short, all that is born of attachment, is suffering. The second noble truth is that there is a cause of this suffering. Suffering is due to attachment. Attachment is one translation of the word *trishna*, which can also be translated as thirst, desire, lust, craving, or clinging. Another aspect of attachment is *dvesha*, which means avoidance or hatred. A third aspect of attachment is *avidya*, meaning ignorance.

Buddha preaches about the chain of 12 links in the cause and maintenance of suffering. These chain of causes and effects lead to sufferings in the world. The suffering in life is due to birth, which is due to the will to be born, which again is due to our mental clinging to objects. Clinging again is due to thirst or desire for objects. This again is due to sense-experience, which is due to sense-object contact, which again is due to the six organs of cognition. These organs are dependent on the embryonic organism (composed of mind and body), which again could not develop without some initial consciousness, which again hails from the impressions of the experience of past life, which lastly are due to ignorance of truth. These constitute the wheel of existence (*bhava-chakra*): Birth and rebirth.

The third noble truth about suffering is that suffering can be extinguished. Nirvana is the state of being wherein all clinging, and so all suffering, can be eliminated here, in this very life. Buddha pointed out that work without attachment, hatred and infatuation (*rāga, dveṣa, moha*) does not cause bondage. The fourth noble truth about suffering is that there is a path (*marga*)-which Buddha followed and others can similarly follow-to reach to a state free from misery. He called it the Eightfold Path to liberation.

Eightfold Path (*astangika-marga*): This gives, in a nutshell, the essentials of 'Buddha Ethics'. This Path is open to all, monks as well as laymen. The first two segments of the path are referred to as *prajñā*, meaning wisdom: Right views-understanding the Four Noble Truths, especially the nature of all things as imperfect, impermanent, and insubstantial and our self-inflicted suffering as founded in clinging, hate, and ignorance. Right resolve/aspiration- having the true desire/determination to free oneself from attachment, hatefulness, and ignorance.

The next three segments of the path provide more detailed guidance in the form of moral precepts, called '*sila*': Right speech-Abstaining from lying, gossiping, and hurtful speech generally. Speech is often our ignorance made manifest, and is the most common way in which we harm others. Right action/conduct. Right conduct includes the '*Pancha-Sila*', the five vows for desisting from killing, stealing, sensuality, lying and intoxication. Right livelihood-Making one's living in an honest, non-hurtful way.

The last three segments of the path are the ones Buddhism is most famous for, and concern *samadhi* or meditation. Despite the popular conception, without wisdom and morality, meditation is worthless, and may even be dangerous. Right effort - Taking control of your mind and the contents thereof, effort to develop good mental habits. When bad thoughts and impulses arise, they should be abandoned. This is done by watching the thought without attachment, recognizing it for what it is and letting it dissipate. Good thoughts and impulses, on the other hand, should be nurtured and enacted. Right mindfulness - Mindfulness refers to a kind of meditation (*vipassana*) involving an acceptance of thoughts and perceptions, a "bare attention" to these events without attachment.

This mindfulness is to be extended to daily life as well. It becomes a way of developing a fuller, richer awareness of life. Right concentration - One who has successfully guided his life in the life of last seven rules and thereby freed himself from all passions and evil thoughts is fit to enter into deeper stages of concentration that gradually take him to the goal of his long and arduous journey –

cessation of suffering.

Right concentration, through four stages, is the last step in the path that leads to the goal-nirvana.

- (i) The 1st stage of concentration is on reasoning and investigation regarding the truths. There is then a joy of pure thinking.
The 2nd stage is unruffled meditation even free from reasoning. There is then a joy of tranquillity
- (ii) The 3rd stage of concentration is detachment from even the joy of tranquillity. There is then indifference to even such joy but a feeling of a bodily case still persists.
- (iii) The 4th and final stage of concentration is detachment from this bodily case too. There are then perfect equanimity and indifference. This is the state of nirvana or perfect wisdom. This is the highest form of Buddhist meditation, and full practice of it is usually restricted to monks and nuns who have progressed considerably along the path.

BUDDHISM AND WESTERN PSYCHOLOGY

Assessment of Buddhism in terms of modern western psychology started when British Indologist Rhys Davids translated *Abhidhamma Pitaka* from Pali and Sanskrit texts in 1900. She published the book entitled it, "Buddhist Manual of Psychological Ethics". In 1914, she wrote another book "Buddhist psychology: An inquiry into the analysis and theory of mind".

The mid-twentieth century saw the collaborations between many psychoanalysts and Buddhist scholars as a meeting between "two of the most powerful forces" operating in the Western mind. A variety of renowned teachers, clinicians and writers in the west such as Carl Jung, Erich Fromm, Alan Watts, Tara Brach, Jack Kornfield, Joseph Goldstein, and Sharon Salzberg among others have attempted to bridge and integrate psychology and Buddhism, from time to time, in a manner that offers meaning, inspiration and healing to the common man's suffering.

Buddhism and Western Psychology overlap in theory and in practice. Over the last century, experts have written on many commonalities between Buddhism and the various branches modern western psychology like phenomenological psychology, psychoanalytical psychotherapy, humanistic psychology, cognitive psychology and existential psychology.

BUDDHISM AND PHENOMENOLOGICAL PSYCHOLOGY

Any assessment of Buddhism in terms of psychology is necessarily a modern western invention. Western and Buddhist scholars have found in Buddhist teachings a detailed introspective phenomenological psychology. Rhys Davids in her book "Buddhist Manual of Psychological Ethics" wrote, "Buddhist philosophy is ethical first and last. Buddhism set itself to analyze and classify mental processes with remarkable insight and sagacity". Buddhism's psychological orientation is a theme Rhys Davids pursued for decades as evidenced by her other writings.

Abhidhamma Pitaka articulates a philosophy, a psychology, and ethics as well; all integrated into the framework of a program for liberation. The primary concern of the *Abhidhamma* (or *Abhidharma* in Sanskrit), is to understand the nature of experience, and thus the reality on which it focuses is conscious reality. For this reason, the philosophical enterprise of the *Abhidhamma* shades off into a phenomenological psychology.

Later on long-term efforts to integrate Abhidhammic psychology with Western empirical sciences have been carried out by other leaders such as Chogyam Trungpa Rinpoche and the 14th Dalai Lama.

In introduction to his 1975 book, *Glimpses of the Abhidharma*, Chogyam Trungpa Rinpoche wrote: "Many modern psychologists have found that the discoveries and explanations of the abhidharma coincide with their own recent discoveries and new ideas; as though the abhidharma, which was taught 2,500 years ago, had been redeveloped in the modern idiom".

Every two years, since 1987, the Dalai Lama has convened "Mind and Life" gatherings of Buddhists and scientists. Reflecting on one Mind and Life session in March 2000, psychologist Daniel Goleman, the author of the best-selling "Emotional Intelligence" and "Destructive Emotions: A Scientific Dialogue with the Dalai Lama" noted; "since the time of Gautama Buddha in the 5th century BC, an analysis of the mind and its workings has been central to the practices of his followers. This analysis was codified during the first millennium, after his death within the system called *Abhidhamma* (or Abhidharma in Sanskrit), which means ultimate doctrine".

BUDDHISM AND EXISTENTIAL PSYCHOLOGY

Buddha said that life is suffering. Existential psychology speaks of *ontological anxiety* (dread, angst). Buddha said that suffering is due to attachment. Existential psychology also has some similar concepts. We cling to things in the hope that they will provide us with a certain benefit. Buddha said that suffering can be extinguished. The Buddhist concept of nirvana is quite similar to the existentialists' freedom. Freedom has, in fact, been used in Buddhism in the context of freedom from rebirth or freedom from the effects of karma. For the existentialist, freedom is a fact of our being, one which we often ignore. Finally, Buddha says that there is a way to extinguish suffering. For the existential psychologist, the therapist must take an assertive role in helping the client become aware of the reality of his or her suffering and its roots. Likewise, the client must take an assertive role in working towards improvement— even though it means facing the fears they've been working so hard to avoid, and especially facing the fear that they will "lose" themselves in the process.

PSYCHOLOGICAL KNOWLEDGE OF SUFISM

The mystics drew their vocabulary largely from the Qur'ān, which for Muslims contains all divine wisdom and has to be interpreted with ever-increasing insight. In the Qur'ān, mystics found the threat of the Last Judgment, but they also found the statement that God "loves them and they love him," which became the basis for love-mysticism. Strict obedience to the religious law and imitation of the Prophet were basic for the mystics. By rigid introspection and mental struggle, the mystic tried to purify his baser self from even the smallest signs of selfishness, thus attaining *ikhlaṣ*, absolute purity of intention and act. *Tawakkul* (trust in God) was sometimes practiced to such an extent that every thought of tomorrow was considered irreligious. "Little sleep, little talk, little food" were fundamental; fasting became one of the most important preparations for the spiritual life.

The central concern of the Sufis, as of every Muslim, was *tawḥīd* the witness that "there is no deity but God." This truth had to be realized in the existence of each individual, and so the expressions differ: early Sufism postulated the approach to God through love and voluntary suffering until a unity of will was reached; Junayd spoke of "recognizing God as He was before creation"; God is seen as the One and only actor; He alone "has the right to say 'I'." Later, *tawḥīd* came to mean the knowledge that there is nothing existent but God, or the ability to see God and creation as two aspects of one reality, reflecting each other and depending upon each other (*waḥdat al-wujūd*). The mystics realized that beyond the knowledge of outward sciences intuitive knowledge was required in order to receive that illumination to which reason has no access. *Dhawq*, direct "tasting" of experience, was essential for them. But the inspirations and "unveilings" that God grants such mystics by special grace must

never contradict the Qur'ān and tradition and are valid only for the person concerned.

Even the Malāmātīs, who attracted public contempt upon themselves by outwardly acting against the law, in private life strictly followed the divine commands. Mystics who expressed in their poetry their disinterest in, and even contempt of, the traditional formal religions never forgot that Islam is the highest manifestation of divine wisdom.

Sufism is considered the inner dimension of Islam and is based on the teachings of the Prophet Mohammad (pbuh) and the holy Qur'an. Sufi psychology is the application of Sufism. Expressions of the basic concepts vary, sometimes radically, between Sunni and Shi'a Muslims and between the various Sufi orders (See Fadiman and Frager 1997; Geoffroy 2010; Grisell 1983; Lings 1993).

The goal of Sufism and Sufi psychology is unified oneness, in whichever aspect of one's being is unified in harmony. It is based on the concept *La ilaha illa Allah*, which means there is only one God. The Prophet taught through his actions that whatever exists in one individual has to come to one point and present itself. When this occurs, the absolute knowledge of oneness with Existence is attained. Called Irfan, derived from the word ma'rifa meaning cognition (Angha 2002b), Sufism is considered the science of the soul.

Beginning in 1945, Yusuf Murad, an academic psychologist and purveyor of the Freudian and psychoanalytic tradition, published a dictionary of terms that provided the Arabic equivalents to English, French and German terms in the fields of psychology and psychoanalysis.

Freud's concept of the 'unconscious' merited special attention. The Arabic term became Ibn Arabi's redolent *al-la-shu'ur*, discussed in his classic, *The Bezels of Wisdom*. Ibn Arabi's poetic and elliptical work had fascinated readers for centuries, just as it fascinated 20th-century Arab Freudians. In the *Bezels*, Ibn Arabi relates the parable of Abraham, whom God visits in a dream and tells to sacrifice his son. According to Ibn Arabi, sleep and dreams occur in the plane of the imagination (*hadrat al-khayal*) and must be subject to interpretation.

his conception of reality as being at once an unreality, while at the same time *not* an illusion at all, brings to light another concept intimately connected to psychoanalysis, the concept of the Imaginary. The Imaginary is greatly elaborated in the later psychoanalytic tradition, most notably by Jacques Lacan – Lacan had read about Ibn Arabi by way of Corbin.

As the religious studies scholar William Chittick elaborates, Ibn Arabi perceived the Imaginal world as an intermediate realm, a world in between the spiritual and the corporeal. As Lacan would later do, Ibn Arabi theorised the example of one's own reflection in the mirror. Is my image in the mirror real or unreal? In one sense it is, and in another sense it is not. This clarifies the nature of the Imaginary as both existent and non-existent. The affinities between mystical Islam and Freudian thought are clear, and deep. But did Islamic thinkers make these connections?

between psychoanalysis and Islam? They did, often pointing to the shared traditions of dream interpretation, as well as the shared technique of understanding texts and dreams through the relationship between the latent and manifest meaning of religious knowledge.

Islamic thinkers also recognised the uncanny resemblance between the analyst-analysand and the *shaykh* (or spiritual master)-disciple relation in Sufism. The mid-20th-century Egyptian Abu al-Wafa al-Ghunaymi al-Taftazani, a *shaykh* of a Sufi order and later a professor of Islamic philosophy and Sufism at Cairo University, began writing about Sufism in the 1950s. He was widely read in Egypt and beyond, and he often compared Sufism and the psychoanalytic tradition.

In particular, al-Taftazani noted that both Sufism and psychoanalysis relied upon an introspective method; both engaged not with the manifest content of the psyche or soul (*nafs*), but with its latent content, a domain often marked by sexual desires. Most importantly, both exhibited a concern for the *batin* or the realm of hidden meaning, as well as for the inner reaches of the unconscious (*al-la-shu'ur*).

The Sufi *shaykh*, much like the analyst, he observed, must ascertain unconscious thoughts and desires from his disciple, in order to facilitate a transformation of the self. Sufism and Freudianism were obviously closely related. Abd-al-Halim Mahmud, a scholar of Sufism who would eventually become Grand Imam of Al-Azhar, noted that 'every Sufi master is a "psychotherapist", so to speak'. The relationship between the Sufi *shaykh* and his disciple is, then, one of attunement with potential for psychotherapeutic transformation.

Sufi practitioners understood their struggle to be part of a larger battle between the noble and ignoble tendencies of man. Al-Taftazani emphasised that Sufis aimed to attain direct knowledge and love of God. They sought a mystical union with God, annihilating the ego-self, in which God remains as a sublime excess.

It was not, al-Taftazani pointed out, a subjective and individual self-exploration; it was a union with the divine. Freud would likely have seen Sufism as 'nothing but psychology projected into the external world', but to al-Taftazani and others it was as an ethical path toward the divine.

PSYCHOLOGICAL KNOWLEDGE OF INTEGRAL YOGA

All spiritual seeking moves towards an object of Knowledge to which ordinary man in his humdrum of life does not turn his eye. A state of knowledge where we can touch, enter, know by identity the Ineffable, Infinite, Indescribable Eternal. As mental beings we have to start from our ordinary instruments and objects mostly but thereafter suprasensuous and supramental means and faculties are needed, as what we are seeking is that 'where the eyes cannot reach, nor speech, not even mind,...' In traditional systems, all cosmic existence is termed as ignorance. Absolute can only inhibit transcendental and non-cosmic existence. Thus, there is negation of individual and cosmic. The aim of traditional object of knowledge is Nirvana, annihilation of ego; there actions are only those required for rites as per scriptures, and that too in early stages only. In severe *Jnanayoga* all actions are abandoned. Even worship and devotion are not required as for that you need some 'other' and with the rise of knowledge there is no other, there is only One. It relies exclusively on Intellect and separates itself from all the rest, i.e. heart, body, life, senses. Undoubtedly thought is the faculty nearest to the Self, thought can regard all the activities and yet stand back from them all, it is less outward tended and more capable of quiescence, it is most constant, normal and effective means for enlightening his ignorance. Its functions of gathering and reflection, meditation, fixed contemplation, absorbed dwelling of the mind on the objects are all most tested and reliable ways of lessening the thick and heavy wall of ignorance.

In reality, thought only is a scout and pioneer, it can guide but not command or effectuate. The leader of the journey is the Will, *Tapas*, *Shakti*, and *Shraddha*, which sovereignly determine our orientation and of which the intellect and the heart are more or less blind and automatic servants and instruments. All activities proceed from this supreme Self and are determined by it. In these activities is expressed the conscious Will or *Shakti* of the spirit moved to manifest its being in infinite ways. This Will is more profound and nearer to the Absolute than our surface thought power. To know that will in us and in the universe and follow it to its divine finalities, whatever these may be is the truest culmination for knowledge. Since thought is not the highest or strongest part of our

nature, its exclusive satisfaction is not necessary in the integral Yoga, it has to see due satisfaction of other faculties as well. The impulse towards Absolute is not just dry and abstract, not just straight line logical thinking, it is, in fact, more multi-sided, more complex, richly diverse and endless. An abstract logic can only reach infinite empty negation or equally infinite and vacant affirmation. Heart, will, life and even the body are no lesser forms of the Conscious Being and are having great significance.

PSYCHOLOGICAL KNOWLEDGE OF SCIENCE AND SPIRITUALITY

Scientific interest in religious spirituality and mental health has increased dramatically. However, many researchers have tended to ignore the historic incompatibility between spirituality and traditional science. A review of the spirituality research suggests that important themes of this historic incompatibility persist in contemporary theories of spirituality. Yet, many spirituality researchers have proceeded as if this incompatibility did not exist. Indeed, there is evidence that spiritual conceptions have been altered to "fit" the requirements of science. No alteration would seem necessary if scientific method were a neutral tool of investigation that did not affect the conceptions themselves.

However, if method itself has philosophical commitments, and if these commitments are incompatible with the conceptual foundations of many conceptions of spirituality, then spirituality researchers may be undermining their own conceptions in the service of science. We outline the philosophical commitments of traditional scientific methods and the philosophical commitments of many contemporary conceptions of spirituality to begin a conversation about this possibility.

EXAMINING THE RELATIONSHIP BETWEEN RELIGIOUS

Spirituality and Psychological Science There has long been an interest in the relationship between religious spirituality and mental health. However, this interest has recently extended to the use of traditional scientific methods for examining this relationship (cf. Clay, 1996; Donohue, 1989; Shafranske, 1996). This use of science to examine the spiritual is unprecedented, uniting two historically separate realms of knowledge and even methods.¹ This unity, however, has been effected without much critical discussion. Calls for such discussion have been issued (e.g., Dennis, 1995; Gorsuch, 1988; Tjeltveit, 1989; Williams and Faulconer, 1994), but with certain exceptions (e.g., Jones, 1996; Richards & Bergin, 1997), these calls have not been heeded in the spirituality and mental health literature.

Critical examination is nevertheless required, because the philosophical commitments of traditional scientific method may conflict with the theoretical assumptions of many conceptions of spirituality (cf. Bergin, 1980; Ellis, 1980; Walls, 1980). This conflict could lead to unintended and unfortunate consequences. There is evidence, for example, that some spirituality researchers alter, ignore, or fail to elaborate important conceptions of spirituality that are incompatible with the traditional philosophy of science (Slife, Nebeker, & Hope, 1996).

The present paper attempts to address these issues. The purpose of the paper is to begin laying the foundation for fertile theoretical discussion and productive empirical work in the important realm of spirituality. We feel that the first task in laying this foundation is one of clarification.

Therefore, we begin by describing the historical separation between science and spirituality. We focus our inquiry on religious spirituality to narrow the vast domain of spirituality to a manageable size. This focus also allows us to point to a more specific history and philosophy with which to compare the history and philosophy of science.

Our main point of departure for this comparison is modernism, both in its emphasis on method for evaluating truth claims and in its assumptions about the nature of the world. Interestingly, many contemporary spirituality researchers embrace modernist scientific methods but reject the naturalistic philosophical assumptions that underlie these methods in their conceptions of spirituality.

We characterize these researchers as antimodernists and attempt to begin a discussion of the appropriateness of their approach to spirituality research. This discussion cannot occur in any productive manner without considering alternative approaches, so relevant postmodernist assumptions are also outlined. First, however, historical context is needed.

A Brief History of the Separation of Science and Spirituality Historically, both spiritual and scientific knowledge have revolved around the issue of authority: Who or what has the authority to decide the truth? In the Middle Ages, the authority for knowledge was primarily considered to be a "who"—God—with the priest or some other "instrument" as a sometimes fallible conduit for God's authority. This authority involved not only what we would consider today to be "religious" or "spiritual" issues, but also what we would consider today to be "scientific" or "secular" issues. To give God authority especially over the latter types of knowledge, such as medicine, sounds strange to many today, but this strangeness is due to the intellectual movements that followed the Middle Ages—the Renaissance and the Enlightenment. These latter movements saw the church gradually lose its authority over general knowledge to two philosophical movements involving rigorous logic and systematic observation.

The first philosophical movement, known as Rationalism, held that the primary authority for truth is rationality or logic. If knowledge, including religious knowledge, did not stand up to the test of rigorous reasoning, then it was suspect. Most religions, however, were not founded upon totally rational systems of thought.

THIS HISTORIC CONFLICT

This historic conflict has not been ignored by contemporary psychological researchers of spirituality (cf. Dennis, 1995; Jones, 1996). Still, a review of the relevant literature reveals that it has rarely been addressed or discussed in the light of present research practices. Jones (1996) and Dennis (1995) correctly note that a growing consensus of scholars has rejected this traditional philosophy of science (sometimes known as "positivism"). However, this rejection is rarely reflected in the research practices of mainstream researchers (cf.

Harmon, 1993, 1995; Slife & Williams, 1995; Slife & Williams, 1997), including, we contend, those researchers investigating spirituality.⁸ Indeed, it appears that most spirituality researchers have proceeded as if the assumptions and practices of traditional, positivistic science—including such practices as replication, reduction, and operationalization—do not conflict with the assumptions they make about spirituality. Many researchers seem to have presumed that scientific method qua practice is a neutral or objective tool of inquiry into spirituality. However, relatively recent advancements in the philosophy of science cast doubt on this neutrality (Bohman, 1993; Dennis, 1995; Gadamer, 1993; Harmon, 1993; Jones, 1996; Polkinghorne, 1983; Robinson, 1985; cf. Slife & Williams, 1995).

PSYCHOLOGICAL KNOWLEDGE OF AVIDYA AND VIDYA

Lauren, a Los Angeles yoga teacher, slipped in a lunge while teaching and injured her ankle. Because she's a practice-through-the-pain kind of yogi, she didn't even stop to assess the injury before continuing her class. When she finally got to the doctor, she discovered she would have to stay off the

ankle for at least a month.

For Lauren, this triggered a deep identity crisis. Since her teens, her strong body has been the source of her well-being, her self-esteem, and, in adulthood, her income. She can still teach, and her injury may even turn out to be an incentive to deepen her understanding of alignment. But because the "me" she has always felt herself to be is so tied to her physicality, the accident has left her deeply disoriented. Of course, she tells me impatiently, she knows she's not her body. But knowing that doesn't seem to cure her feelings of self-doubt and fear.

George has a different issue. His wife has told him she's involved with another man and wants to have an open marriage. George feels shocked, abandoned, and insecure, which leads him to thoughts like "I'm not good at relationships" and "I'm not lovable." Essentially, he feels the same disorientation that Lauren does. "I don't know who I am when the person I love doesn't want me," he says.

AVIDYA: AN IDENTITY CRISIS

Deeper than the trauma itself, deeper even than the memories that may be contributing to their feeling of personal derailment, Lauren and George are both suffering from the core misunderstanding that the yogic texts call *avidya*—a basic ignorance of who we are and the underlying reality that connects everything in the universe. Their current situation is an opportunity for each of them to recognize this fundamental misperception—to look into the nature of identity itself. When everything you have relied on seems to dissolve, you get not only a glimpse of the cracks in your psychological infrastructure but also a chance to examine the source of the problem, which gives you a better shot at getting free of it.

The Sanskrit word *vidya* means wisdom or knowledge—the wisdom earned through deep practice and experience. The prefix *a* indicates a lack or an absence. In the yogic sense, *avidya* means something that goes far beyond ordinary ignorance. *Avidya* is a fundamental blindness about reality. The core ignorance we call *avidya* isn't a lack of information, but the inability to experience your deep connection to others, to the source of being, and to your true Self. *Avidya* has many layers and levels, which operate in different ways. We see it threaded through every aspect of our lives—in our survival strategies, our relationships, our cultural prejudices, the things we hunger for and fear. All forms of cluelessness and fogged perception are forms of *avidya*. But behind each of *avidya*'s manifestations is the failure to recognize that essentially you are spirit, and that you share this with every atom of the universe.

For instance, one common way you can see *avidya* in action is in the habit of thinking that other people should treat you better or that you need someone's approval to feel good about yourself. You might "know" that this isn't true—that people often act without regard for the welfare of others and that making your self-esteem contingent on how others feel about you is a bit like trying to buy zucchini at the Gap.

If someone points out to you that you are responsible for your own inner state, you might think, "I know!" But knowing that truth intellectually doesn't change your feelings or behavior. It doesn't stop you from trying to cajole or manipulate your friends and partners and children into acting the way you think you "need" them to act—perhaps demanding continual reassurances of love from a partner, or looking for constant evidence of being needed. Intellectual knowledge alone doesn't have the practical power to help you. For that knowledge to become *vidya*, or true wisdom, you need to understand it on a visceral level. Until you do, you are suffering from *avidya* on the level of

relationships, with all of the attendant discomfort and pain. And the same goes for every other type of avidya.

IDENTIFYING AVIDYA

In Patanjali's Yoga Sutra II.5, we are given four useful clues for identifying when we have slipped into avidya. Each clue points to a particular way in which we take surface perceptions for reality. It cautions us to look deeper—to inquire beneath what our physical senses or cultural prejudices or egoic belief structures tell us. "Avidya," the sutra says, "is to mistake the impermanent for the eternal, the impure for the pure, sorrow for happiness, and the not-Self for the true Self." If you explore this sutra, it can lead you to a profound reflection on the illusory nature of perception. Even a casual look at history reveals that each advance in science and culture has called into question beliefs that our ancestors took for granted—everything from the idea that Earth is the center of the solar system to the notion that matter is solid. The primary purpose of the sutra is question our notions of identity. But, at the same time, it offers a window into some of our garden-variety forms of cluelessness. Notice how Patanjali's definition applies to so many levels of ignorance. Mistaking the perishable for the imperishable? That's the everyday denial that keeps people believing they can depend on fossil fuels indefinitely, or jog on asphalt without damaging their cartilage. It's that hopeful belief that your romantic passion will last forever, or that another person's love will give you security. On a deeper level, it's what keeps you from seeing that your conception of "me"—"my personality," "my self"—is not stable and is certainly not permanent, that just as your body is an ever-shifting configuration of atoms, so your internal sense of self consists of thoughts about who you are (as in "I'm pretty" or "I'm confused"), feelings like happiness or restlessness, and moods such as depression or hopefulness—all of which are subject to change.

PRACTICING AWARENESS OF AVIDYA

Taken together, these flavors of avidya cause you to live in a kind of trance state—aware of what's obvious on the surface but unable to recognize the underlying reality. Since this personal trance is fully supported by the beliefs and perceptions of the culture around you, it's difficult for most of us even to recognize the existence of the veil. To fully dismantle avidya is the deep goal of yoga, and it demands a radical shift of consciousness. But the good news is that just recognizing that you're entranced is to begin to wake up from the dream. And you can begin to free yourself from its more egregious manifestations by simply being willing to question the validity of your ideas and feelings about who you are.

Avidya makes you believe that the way you think or feel things are is the way they actually are. You can step past this misperception by looking at what your mind habitually tells you and questioning its conclusions about reality. Then, go a step further and notice how feelings create thoughts, and thoughts create feelings—and how the reality they construct for you is exactly that: a construct! One of the great moments for catching your own avidya is to tune into the first conscious feeling that surfaces as you wake up in the morning. Then, notice where it takes you. For several days recently, I woke up feeling lonely and slightly sad. This is not usual for me, so it caught my attention. I would emerge from the prewaking state and open my eyes to a gray sky (we were having a lot of morning fog on the California coast that week). I'd feel a dull, sinking energy in my body. Within seconds, something would grab hold of that feeling, identify with it ("I'm sad"), and expand it into a dulled, gray inner landscape.

This automatic process is the action of what in yoga is called the "I-maker," or *ahamkara*—the

mechanical tendency to construct a "me" out of the separate components of inner experience. The inner dialogue ran something like this: "Oh, no, another gray day. Gray skies make me feel depressed. I need to get out of this climate. No, I shouldn't blame the weather. It's me. I have these depressed family genes. It's hopeless!" Before I even got out of bed, I had written off my entire day.

HOW TO FREE YOURSELF FROM AVIDYA

Dismantling avidya is a multilayered process, which is why one breakthrough is usually not enough. Since different types of practice unpick different aspects of avidya, the Indian tradition prescribes different types of yoga for each one—devotional practice for the ignorance of the heart, selfless action for the tendency to attach outcomes, meditation for a wandering mind. The good news is that any level you choose to work with is going to make a difference.

You free yourself from a piece of your avidya every time you increase your ability to be conscious, or hold presence during a challenging event. You can do this in dozens of ways. For instance, you can increase your consciousness about your connection and responsibility to the planet by sensitizing yourself to the energy in the natural world, in wind and water and trees. You can increase your awareness of your connections to others by listening better and by practicing kindness—but also by sinking your awareness into the heart center and trying to tune in to others from that interior place. You increase your consciousness of yourself by noticing your blind spots, or by noticing your emotions and their effect in the body.

MEDITATIONS TO DISMANTLE AVIDYA

Meditations that tune you into pure Being will begin to remove the deeper ignorance that makes you automatically identify "me" with the body, personality, and ideas. On a day-to-day, moment-to-moment level, you burn off a few layers of avidya every time you turn your awareness inward and reflect on the subtle meaning of a feeling or a physical reaction.

These types of interventions are not just key spiritual practices. They are also practical self-help techniques. When George asks himself, "Is it really true that my wife's involvement with another man damages my sense of self?" he has a chance to recognize that his wife's choices are not statements about who he is. This calms his anxiety, which gives him some leverage for moving forward. Noticing where the sadness and disorientation sit in his body, feeling his way into the sensations around the sadness, might lead him to look for the root feeling behind the fear and disorientation.

He might notice that he has a hidden belief about himself, like "I'm unlovable," and recognize that it comes from childhood and is not really related to the current situation. He could then practice with the sad feeling, maybe breathe it out, or substitute a positive thought for the painful belief, and notice how either practice changes his mood. In this way, his self-inquiry practice gives him support and clarity as he decides how to handle his wife's request for an open relationship.

SELF-KNOWLEDGE IN INDIAN PSYCHOLOGY

Within the normal routine of science these fundamental questions are seldom raised. Each scientific discipline has its own framework within which more immediately practical questions are selected, answers searched and, in due time, generally found. As long as we remain within the boundaries of our discipline, the deep questions do not really arise.

They do come up, however, when we get involved in interdisciplinary work. Then we get confronted

with the significant differences in approach to knowledge and its acquisition that exist between the different scientific disciplines. The issue comes up still more trenchantly, when we try to study a subject that simply does not fit within the parameters of our particular discipline. Consciousness is one such subject that challenges the most basic assumptions of the disciplines that are at present trying to tackle it. When consciousness was studied in the 19th century there was plenty of confusion, no doubt, but no essential, epistemological difficulty, for it was approached mainly from within the confines of a metaphysical and clinical psychology in which subjective, introspective forms of enquiry were still accepted as a legitimate source of knowledge. When psychology in the early years of the 20th century, attempted to become an objective science, like physics, it redefined itself as behaviorism, and the subject of consciousness disappeared more or less completely from scientific enquiry (Guzaldere, 1995).

Only at the very end of the 20th century, did consciousness force itself again on the scientific agenda. This time around, however, it was taken up by an objective psychology, "evidence-based" medicine, and hard sciences like neurophysiology, computer science and physics. And here the epistemological difficulties arose. There can be no doubt that the objective sciences have made tremendous progress during recent times regarding the functional and physical correlates of consciousness, but it is hard to believe that this will make us much wiser about consciousness itself.

If it is confirmed, for example, that our human consciousness is not located in any one specific center of the human brain but that it goes together with 40Hz electromagnetic waves that move from the front to the back over the frontal lobes, then this is extremely interesting in its own right, but it is not very clear how much this adds to what we know about consciousness itself (as distinct from its material correlates). That the essence of consciousness escapes scientific study as presently understood is perhaps not so surprising. Modern science has put all its energy into arriving at knowledge that is objective and independent of the observer, and consciousness might quite well be quintessentially subjective.

From where then do we get knowledge about consciousness itself? An answer might be found in the fact that modern science is not the only systematic effort to arrive at knowledge that humanity has made so far. There are in fact many other knowledge systems, but for our purpose the most promising is that of the spiritual traditions of India, which have specialized for thousands of years in the exploration of the inner worlds and on the acquisition of valid and reliable knowledge of consciousness. That the Indic traditions could play a major role in the further development of consciousness studies is widely acknowledged (Baruss, 1998).

What is less clearly seen, is that this contribution consists of a unique combination of two elements: on the one hand a highly sophisticated theoretical framework for the study of consciousness and on the other a welter of practical techniques to change consciousness. How crucial this latter ability to modify consciousness could be for the effective study of consciousness has as yet hardly been recognized. This is surprising given the immense role physical technology has played in the advancement of the physical sciences: technology has not only provided the apparatus needed for more detailed observations, but it also has been the spur for further theoretical work and the final test for the practical applicability of theoretical advances. Similar roles have been played by Yoga in the development of the Indic theories of consciousness. An effective "technology of consciousness" is absolutely critical for the development of more powerful and reliable methods to arrive at subjective knowledge.

Integrating Eastern and Western knowledge systems is however not easy. It is still comparatively simple, for example, to study the physiological effects of meditation techniques from within

science. Such decontextualised phenomena don't conflict with the standard scientific paradigm and have been extensively studied in literally thousands of scientific research projects.

But more subtle aspects of the Indian understanding of consciousness cannot be fully grasped without challenging the materialistic, reductionist premises that are, according to many, still the bedrock of modern science. Such not physically reducible aspects of reality cannot be fully understood without adopting at least some essential elements of the Vedic, or Buddhist, ontology, which are incompatible with a materialistic view of reality.

If one studies the materialist and the spiritual systems dispassionately, it becomes clear that the results of Yoga cannot be explained losslessly by the materialistic worldview, while, as we will see later, it is comparatively easy to fit the entire scientific enterprise within one or two specific niches of the more comprehensive Indian ontology. But before we can work this out, we must have a look at what the two different traditions actually mean by knowledge, consciousness and reality.

MEANT BY KNOWLEDGE

The words "knowledge" and "consciousness" are used in many different ways by different people, so before proceeding I'll try to clarify how I will use these terms. I don't think it is possible, or for that matter, very useful, to give exhaustive definitions of either. These concepts are too complex and comprehensive for such an attempt. So the following is meant only as a first indication of the direction in which we will move. For our limited purpose it is sufficient to observe that the knowledge aimed at by science is not of the same type as the knowledge aimed at by the Vedic tradition. Scientific knowledge consists of explicit statements about things and processes and the relationships between them. One of the most generic descriptions of a valid statement of scientific knowledge is probably "If you do action *a*, under conditions *c*, you will get result *r*". (Velmans, 2001) This pragmatic formula holds even for much of yogic knowledge, but it does not hold for all of it: it presumes, for example, the existence of an independent agent, which doesn't apply to the higher ranges of mystical experience. There are other differences as well. In the Vedantic worldview, where truth is not seen primarily as a property of sentences, but as something inherent in the observer as well as the observed, the knowledge aimed at doesn't consist of independently existing, external descriptions of such truth.

The aim rather consists of the very act of seeing, realising or even becoming that truth. In ordinary science explicit statements about reality are complete in themselves; in Yoga statements about reality are rarely more than hints or aids, meant to arrive at a direct perception of a deeper truth, which itself remains concealed behind the outer formula.

As Forman (1990, p.41) says with respect to "Pure Consciousness Events", "linguistic systems are afloat, not pinned down to the terms in which the mystic undergoes the event". While scientific knowledge can indicate avenues for outer action, Vedic knowledge indicates rather a different way to be and experience. Even the role of reason is not the same in both systems.

In the early, Vedic and Upanishadic tradition rational thinking is not used as a means to arrive at truth, but rather as a means to express as faithfully as possible a truth already seen or lived on a "higher" level of consciousness, so that the expression, by the quality of the consciousness inherent in it, can help others to experience that truth directly for themselves.

WITHIN THE CONTEXT OF YOGA, SRI AUROBINDO DESCRIBES VEDIC KNOWLEDGE AS FOLLOWS:

[T]he knowledge we have to arrive at is not truth of the intellect; it is not right belief, right opinions, right information about oneself and things, that is only the surface mind's idea of knowledge. To arrive at some mental conception about God and ourselves and the world is an object good for the intellect but not large enough for the Spirit; it will not make us the conscious sons of Infinity. Ancient Indian thought meant by knowledge a consciousness which possesses the highest Truth in a direct perception and in self-experience; to become, to be the Highest that we know is the sign that we really have the knowledge.

For the individual to arrive at the divine universality and supreme infinity, live in it, possess it, to be, know, feel and express that one in all his being, consciousness, energy, delight of being is what the ancient seers of the Veda meant by the Knowledge; (Sri Aurobindo, 1972a, p.686-87) It may be clear that this Vedic concept of knowledge is something entirely different from the scientific concept of knowledge. Of course the ancients were aware of the more mundane type of knowledge, but they were less exclusively interested in it than modern science. Avidya, or "ignorance", as they called it somewhat disdainfully, denotes all knowledge that is not knowledge of the Absolute and the word is specifically used for knowledge of the world, in other words, for science. According to Sri Aurobindo's interpretation of the Ish Upanishad, both *vidya* (Knowledge of the One) and *avidya* (knowledge of the multiplicity) are needed for a complete understanding of reality: Into a blind darkness they enter who follow after the Ignorance, they as if into a greater darkness who devote themselves to the Knowledge alone.

He who knows That as both in one, the Knowledge and the Ignorance, by the Ignorance crosses beyond death and by the Knowledge enjoys Immortality.

(Sri Aurobindo's translation, 1996, pp. 21-22) In the acquisition of the Vedic type of Knowledge four clearly demarcated stages are distinguished, of which only the first is a part of ordinary science: information, experience, realization and transformation.

These four stages of understanding are most typically used to describe different levels of understanding the ultimate reality, but they also occur in other types of knowledge. Information can be gained by listening to others, by reading or by conducting objective experiments. It is the level of knowledge science deals with. Unless it is related to something emotionally loaded, information generally does not directly affect a person. Only through the second stage of direct experience, knowledge becomes really one's own. Still, experience does not yet make any deep change to whom one is in one's essence.

It is still something one *has* and is still separate from who one thinks one *is*. Direct personal involvement comes with the third step realisation. Realisation involves a true reversal of consciousness. After realisation, there is no coming back. It changes who you feel you are. But even then, even though one has changed one's basic position and outlook on reality, one's nature remains still largely what it was.

The whole nature changes only during the last stage, through the process of transformation. Experience and realisation can come by themselves, or after much effort, but they are things that happen at once. One can afterwards remember the exact date and time. Transformation however is a gradual and laborious process.

Before we can explore how the Vedic, inner knowledge relates to scientific knowledge, we have to have a look at what consciousness is, for human knowledge is typically a combination of information with consciousness, or at least potential consciousness. Recent years have seen an

enormous interest in information, largely spawned by the communications industry with its need to store and transfer information electronically. We will not get into this information aspect but focus rather on the aspect of consciousness.

CONSCIOUSNESS WHAT IS REALITY?

In most scientific literature, consciousness is equated with the ordinary mental awareness of one's surrounding and one's internal movements. Sri Aurobindo uses the word "consciousness", in line with the Vedic tradition, in a much wider sense, for something that is pervasive throughout existence. As such it can take many forms. In man consciousness manifests most typically as mind, but in pure inorganic matter, for example, it manifests as not more than an obscure habit of form and movement. Consciousness in Sri Aurobindo's terminology is thus a much wider concept than mind. It exists in many grades or types that together form a hierarchy ranging from matter to the pure spirit, with the mind somewhere in the middle.

SRI AUROBINDO FORMULATES HIS VIEW OF THIS WIDER RANGE OF CONSCIOUSNESS AS FOLLOWS:

Consciousness is usually identified with mind, but mental consciousness is only the human range which no more exhausts all the possible ranges of consciousness than human sight exhausts all the gradations of colour or human hearing all the gradations of sound – for there is much above or below that is to man invisible and inaudible. So there are ranges of consciousness above and below the human range, with which the normal human [consciousness] has no contact and they seem to it unconscious...(Sri Aurobindo, 1972b, p.234).

This extended use of the term may in first instance be confusing for those who are used to the way the term is used in most of western scientific literature. Consciousness and mind are there often equated and in psychology mind is even used as a wider concept than consciousness (for example when a distinction is made between conscious and unconscious mental processes). Such a restricted conceptualization of consciousness makes of consciousness a freak phenomenon that suddenly appears at a certain level of physical complexity and that as such defies explanation. Much of the confusion that presently reigns in the field of consciousness studies seems to be due to an unworkable delineation of both matter and consciousness. Chalmers' "hard problem"[REF] for example, is hard only because it contains implicit assumptions about the relationship between matter and consciousness that are quite unwarranted.

If we take consciousness in line with the Vedic tradition as all-pervasive and existing not only within individuals, but also, independently, on a cosmic scale, then the individual consciousnesses can be seen as instances, portions or representatives of these different types of cosmic consciousness. The gradedness of consciousness and its cosmicity taken together have led to a conception of reality as a complex scheme involving interpenetrating but experientially distinct worlds, each consisting of a different type of consciousness and being.

Sri Aurobindo sees these different worlds as different *relations* between conscious existence as observer and the same conscious existence as the observed. Human mentality, that is our mental awareness of the physical world, is just one type of consciousness somewhere in the middle of a long scale. At the upper limit of the scale there is the consciousness the Divine has of himself. At the bottom end of the hierarchy we have the completely involved consciousness of inorganic matter. In the latter, self-oblivion is almost complete with the elemental particles of physics moving

about in a seemingly unconscious, but still lawful organisation: "the force acting automatically and with an apparent blindness as in a trance, but still with the inevitability and power of truth of the Infinite" (Sri Aurobindo, 1972a, p. 344). The grades of conscious existence in between the two extremes of Spirit and Matter have been described in many ways. Sri Aurobindo use generally the Vedic "sevenfold chord of being": Sat, Chit, Ananda, Supramental, Mental, Vital and Physical, with several subdivisions within each of these seven major planes.

We mean [by planes of consciousness, planes of existence] a general settled poise or world of relations between Purusha and Prakriti, between the Soul and Nature. For anything that we can call world is and can be nothing else than the working out of a general relation which a universal existence has created or established between itself, or let us say its eternal fact or potentiality and the powers of its becoming. That existence in its relations with and its experience of the becoming is what we call soul or Purusha, individual soul in the individual, universal soul in the cosmos; the principle and the powers of the becoming are what we call Nature or Prakriti (Aurobindo 1972c, p. 429).

In this view there exists neither a purely objective world "out there", nor a purely subjective experience "in here". Reality consists of the different *relationships* between consciousness-existence as observer and the *same* consciousness-existence as observed. Conscious existence is all there is at any level. When consciousness-existence identifies itself with the ordinary physical mind, it experiences a separation between itself as subject and itself as object and senses itself as a separate subject in the midst of what appears to it as an "objectively", independently existing matter. There can be no doubt that this is the most common experience of reality amongst humans, but otherwise it is not privileged in any manner.

Matter as we see it and our ordinary mental consciousness are not real primitives, but rather intermediate points on a long continuum of conscious-existence, which ranges from what appears to us as an unconscious matter to what appears to us as superconscious spirit. Of course in our ordinary mental awareness we don't see reality like this, we see the world as existing independently "out there", and we experience our own consciousness as existing "inside" and as looking out at that "objective reality". This is quite sufficient for most practical purposes, but will not do as a full description of reality.

It grants much too concrete a sense of reality to the world as we see it. It should be clear that not only acknowledged subjective phenomena like colour and hardness but even supposedly objective phenomena like space and time are constructs of our mental level of consciousness. *All* our descriptions of reality, whether stemming from a naive common sense or from the most sophisticated mathematical models of science, can, in principle, never be more than the outcome of the interaction between our observing conscious existence with whatever ineffable conscious existence presents itself to it as object. Even the very distinction between subject and object exists only on the intermediate levels: at the bottom consciousness is totally involved in its own separate existence, at the top it is all encompassing.

These different worlds of Veda and Vedanta are not closed systems that are completely sufficient within themselves. But it is not correct to speak of interactions between essentially different types of substances or forces either (e.g. of interactions between mind and matter). The different worlds are interwoven in a different manner, based on an underlying identity. In terms of the observing self, Vedanta holds that there is actually only one observing Self (the *paramatman*).

The many selves of the Sankhyas only appear separate and different from each other by a process of self-variation an "exclusive concentration" that takes place in portions of the original Self that in essence remains One. Similarly, as the Sankhyas acknowledge, there is only one objective reality, which is ineffable, or, in the more descriptive Sanskrit phrase, *anantaguna*, "of infinite quality".

So there is actually only one world of which we are portions and see aspects. When our individual consciousness expands and begins to merge with the cosmic consciousness, we begin to realise that there is only one conscious existence that separates itself, for the joy of manifestation, into an infinite number of relations between itself as observing consciousness and itself as observed Nature. At any given time, the only thing we can know about the reality is the interaction between the center, and thus the type, of consciousness we identify with and this ineffable Nature. The scientific, objective, relationship is just one amongst many such relationships.

FOUR TYPES OF KNOWLEDGE

On the basis of this broad philosophical conceptualisation of knowledge, consciousness and reality, we can now attempt to build a more pragmatic bridge between scientific and Vedic knowledge. Though the scientific and the Vedic ways of knowing seem so different as to be incompatible, they may actually be complimentary and prove to be equally needed to arrive at a complete picture of ourselves and of the world in which we live. While scientific knowledge has proven to be extremely effective within the limited range of the mental understanding of the physical world, the Vedic type of Knowledge has provided a comprehensive map of the whole field.

Just like science has spawned a technology to explore the material level of reality in an objective way, the Vedic tradition has developed yoga as an effective technology to study the inner and higher levels of reality in a subjective way. It does this largely by enabling the observer to change the type and center of his or her consciousness. This is not only relevant for those interested in metaphysics and spiritual growth. What happens on the higher and lower levels of consciousness has an enormous influence on our ordinary waking state, and their study is thus of the utmost importance for humanity. The systematic study of consciousness will have to begin, however, on the level of the ordinary waking mind. Even in our ordinary waking state, there is not only one type of knowledge, but several. In one place, Sri Aurobindo distinguishes four different types of knowledge that are routinely used in the ordinary waking state. Together they form a gradient between the external knowledge that Science works with and the inner knowledge that according to the Vedic tradition is the essence of all other forms of knowledge. The four types of knowledge are called as follows:

1. Knowledge by indirect separative contact (= scientific knowledge of the outer reality)
2. Knowledge by direct separative contact (= objective introspection of inner processes)
3. Knowledge by direct intimate contact (= experiential knowledge of inner processes)

4. KNOWLEDGE BY IDENTITY (= VEDIC KNOWLEDGE)

The first type of knowledge, *knowledge by indirect separative contact*, consists of explicit, objective information about what we see as the external world. Sri Aurobindo describes it as *indirect* because it is mediated by the external sense organs, and as *separative* because it goes together with a sense of clear separation between the self, who is the knower, and the object, which is the known. This type of knowledge has been developed and expanded impressively by the physical sciences over the last couple of centuries and is perhaps too well-known to need much further comment.

The last type, *knowledge by identity*, is the very different type of knowledge that we have of our own existence. For this type of knowledge the senses are not required as it is a knowledge that arises "from inside out." It is the knowledge we have of ourselves simply because we are. There is no difference here between subject and object and, in a way, not even a process: knowing and being are one. In our ordinary waking consciousness, knowledge by identity is hardly developed and almost point-like in character: it is undifferentiated and has no other content than the bare fact of its own existence. But according to the Vedic tradition, it is possible, through extensive spiritual practice, to develop this type of knowing further and then there is no theoretical limit to its scope. It is through this type of knowledge that the individual is considered capable of realising his or her identity with the Cosmic or the Transcendent Divine. It is also this type of knowledge the Upanishad speaks about when it says: "When That is known, all is known." The logic behind this amazingly bold statement is that knowledge by identity is in essence the knowledge of the Self, and as all individual Selves are ultimately one, it is considered possible to have an intimate self-knowledge of other selves.

This claim is in principle open for experimental testing, but it may be clear that it requires a rather radical change in many aspects of one's cognitive functioning to make knowledge by identity operational to a substantial degree. It should not be surprising, however, if smaller manifestations of the basic principle would be found to be fairly common, for example in occurrences of telepathic communication. As interest in consciousness studies increases and our insight in the processes and techniques of change in consciousness deepens, one can expect more and more interesting work in this direction.

In between these two extremes there are two more types of knowledge, both used for our internal states and processes. The first is knowledge about internal, psychological and physiological states and processes obtained by looking "objectively" at what is happening inside oneself. If one focuses on one's physical state, one could say for example, "My hands feel cold."

The cold sensation is then felt as pertaining to a part of myself, even though I'm neither fully identified with the cold sensation nor with the hands. The same separation between the inner observer and the inner observed can be experienced with feelings or thoughts. I can say for example, "I like this approach to Epistemology," or "I think that he is right." In this type of knowledge there is a small gap between the observer and the inner process that is being observed. This type of knowledge is thus called knowledge by separative direct contact, *separative* because there is this sense of distance between the knower and the known, *direct* because the outer senses are not required. This type of knowledge was, under the name of "introspection", used extensively in Psychology till the second decade of the twentieth century when it was discarded in favour of a purely external study of behaviour. In a later section we will discuss some of the difficulties with introspection and the solutions Indian psychology has found for them.

In the third type of knowledge one identifies with some inner psychological state or process. One is conscious, but one does not *observe* what is going on inside because one is fully involved in what one is doing. This type of identification is experienced for example, when one is fully engulfed in a feeling, say a feeling of happiness. If one expresses what one feels in such a state of engrossing happiness, one does not say anymore explicitly and self-referentially, "Today I'm really happy," which would imply a certain distance, but one's happiness shows implicitly in the manner in which one expresses oneself, e.g. "What a beautiful day it is today!" Similarly, when one is completely engrossed in one's own thinking one can express what one is thinking, but the expression does not involve a reflexive reference to the fact that one is thinking. One could say, for example, "You are right." Even in this case there must be some implicit awareness that one is thinking this, but one is

not aware of it by looking at one's own thinking process from the outside.

One is aware of it from within the thinking itself, or perhaps one should say, by *being* the thought. This third type is thus called knowledge by intimate direct contact, intimate because the observer is united with the observed, and direct because there are no intermediary sense organs involved. Knowledge by intimate direct contact is hardly used in the development of science but, under the name of "experiential knowledge", it is an essential element of all forms of "learning by doing" and the training of skills. It is also used extensively in psychotherapy, whether psychodynamic, cognitive behavioral, or humanistic / transpersonal. It can be trained to extraordinary levels of intensity and refinement by spiritual practice and it plays an important role in most mystical traditions.

Though it is useful to distinguish these four types of knowledge conceptually, in daily life they often go together, in quick succession or even simultaneously. The most fascinating aspect of this is, that the last, the knowledge by identity, is always present in the other three, be it often as a hidden, implicit presence. This is clear for the middle two: one simply *knows* that the hand one feels as cold is "one's own", one *knows* that it is oneself who is happy. But knowledge by identity is there in a diminished form even in our sense-based knowledge of the outside world: one recognises what one sees *as part of one's world*.

This may look like a rather minimal level of identification, but the suffering caused by its absence in some of the most serious and "unlivable" forms of schizophrenia, makes clear how essential this basic sense of belonging is for a healthy existence. There is another form in which knowledge by identity presents itself within our knowledge of the outside world, and that is in all we know about the structure of the world that we cannot derive from the raw data our senses provide. There are certain basic knowledge structures that are needed to make sense of what comes from the senses. The fundamental rules of logic and mathematics are one interesting example of such innate or intuitive knowledge, but it occurs also in the less formalized knowledge individuals have of their surrounding. Sri Aurobindo holds that a lot of this "built-in," instinctive knowledge is required to make anything at all out of the extremely incomplete and imperfect information that our sense-organs provide.

The necessity or otherwise of this type of pre-experiential knowledge has been discussed for centuries, but it appears the tide is slowly turning again in its favour. For example, Sir Karl Popper (1994, p.15) has given some of the most convincing arguments against a *tabula rasa* image of the newborn child and recent psychological research seems to provide experimental evidence corroborating the idea that we do have extensive innate knowledge about the structure of the world.

How such innate knowledge relates to intuitive knowledge remains however a complex issue. In Sri Aurobindo's description of the manifold reality, logic and mathematics both belong to the pure mental plane and not to the physical plane, and they are derived from knowledge by identity rather than from knowledge by separative indirect contact.

THE HONING OF SUBJECTIVE KNOWLEDGE

As a whole, science has concentrated almost exclusively on the acquisition of sense-based knowledge of the outer world. This is understandable in terms of the historical division of territories between science and religion at the time of Descartes. It can also be explained as a universal human trait: the windows of the senses look outwards, as the Upanishads say, and that is where we are inclined to look for truth in the first place. But there are also a number of pragmatic reasons that

have maintained this strong external focus. The main one is the lack of reliability of untrained introspection and other forms of subjective knowledge. All human perception is prone to error, but perceptions of inner states are particularly inconsistent and unreliable. There are many reasons for this. One of them is that human beings are aware of only a tiny fraction of what is going on inside.

We have access only to the surface and miss out on the forces and processes that take place below, behind and above the surface, and these surface appearances can be misleading. As Freud discovered in the early twentieth century and the Indian tradition in a completely different (and much more comprehensive) fashion several millennia earlier, it is from these deeper (and higher) layers of consciousness that our outer nature is determined. As long as one doesn't open the deeper recesses of one's nature to the inner sight, it is not possible to achieve a reliable form of introspection.

A second distorting factor is that we have an interest in the outcomes. In introspection one typically looks with one part of oneself at another part of oneself. It is extremely difficult to watch oneself objectively without any bias, fear or expectation. The mind has its preferences, the vital nature its desires and needs, the body its physical limitations.

All these interfere with a "clean" observation. This is of course true for external observations as well, but the outer reality does not so easily change because of one's moods or desires. The inner states, on the other hand, change easily under such influences and even due to the observing process itself. Taking all this together it is quite understandable that introspection was discarded in the beginning of the twentieth century as too unreliable a source of information for scientific use.

But none of these problems with introspection is irremediable. Each one of them can by systematic effort be eliminated. The different paths of Yoga have in fact all developed techniques that are supposed to achieve exactly this. They all aim to arrive at a direct perception and finally a merger of one's individual consciousness and being with the consciousness and being of the Divine. To make this possible, a considerable purification of one's inner instrument, or *antahkarana* is essential.

The different yogic traditions thus all have their methods to improve the range, the "resolution" and the reliability of inner perception. These techniques can be grouped into those that aim at greater concentration, at freedom from the sense-mind leading to an ability to penetrate the deeper and higher layers of consciousness, and at freedom from partial identifications, that is from the body, from the vital drives and emotions, from one's thoughts and finally from the ego-sense.

These techniques are within their tradition considered to lead to a free consciousness, capable of watching the movements of Prakriti, nature, as a completely independent witness, making it possible to observe inner events not only with a greater precision but also with a perfect "objectivity" and thus reliability. The inner disciplines of Yoga can thus play exactly the same role for a science of the inner realities as modern technology is playing for the material sciences.

CONCLUSION

If we presume that the essential nature, the *svadharma*, of science is to look for truth, then there should be all reason for science to expand its field and take up the methods of Yoga to achieve reliable and detailed knowledge of the inner realities.

This is, however, an entirely new territory for science. Modern science is a child of the European Enlightenment and systematic methods to train consciousness have, at least in recent times, not been part of the mainstream western tradition. Besides new methodologies, it would involve new attitudes towards personal involvement and, perhaps most difficult of all, the acceptance of Indic ontologies, which are more comprehensive than the materialistic and idealistic philosophies with which the West is familiar.

It will even involve new scientific hierarchies, based less on intellectual acumen and vital assertiveness, and more on inner wisdom. Given the political and economical dominance of the West at present, one can expect considerable resistance to this acceptance of Eastern techniques, philosophies and attitudes.

There are, however, precedents of cultural influence moving in the opposite direction of political conquest. In classical Rome, for example, Greek art and science were widely, and we would now say rightly, valued above their Roman counterparts: after Athens had been defeated militarily and politically, slaves from Greece were used extensively as teachers for the Roman elite.

Eugene Taylor predicts, on the basis of a detailed study of the history of spirituality in the United States, that a similar cultural counter stream will take place in the coming years.

He sees that as a result of a "cross-cultural exchange of ideas between East and West unprecedented in the history of Western thought" there will be a "historical change in the very context in which reality is defined" (Taylor 1999, p. 290). One can only hope that Taylor's prediction will come true. At present spiritual development is left entirely to the subculture and remains outside the compass of science.

As a result, mainstream society is in a state that has much in common with multiple personality disorder. Public life -- the media, government, business, and education -- is entirely governed by the materialist and reductionist ideas of the physical sciences.

Private life, after five and in the weekends, follows often a completely different set of values and truths. Like all such internal divisions this split is leaving both sides diminished. Science is providing more and more power without the wisdom to use it. Religion and spirituality abound in uncritically accepted creeds and dogmas, and miss the best that the progressive intellect of humanity could have given them. If science and spirituality can come together we can expect an unprecedented collective progress in the inner realm, and it is hard to deny that this is sorely needed.

All really serious problems facing humanity at the present stage are not material in nature but psychological. Imagine the joy and fulfillment if the ancient yogic techniques for attaining inner peace, freedom and wisdom could again become an organic part of our collective life and could be developed further for the benefit of all present and future generations!.

Emergence of Psychology MCQs

1. Phrenologists tried to find out about personality by:
 - a. reading a person's horoscope
 - b. feeling a person's skull
 - c. looking at a person's hands
 - d. asking people questionsAnswer: d

2. A limitation of selective breeding studies is that they cannot:
 - a. tell us anything about the role of genes
 - b. be used to study human beings
 - c. provide information relevant to the nature/nurture debate
 - d. tell us anything about the role of the environmentAnswer: d

3. Which neo-Freudian challenged his ideas about penis envy?
 - a. Adler
 - b. Fromm
 - c. Jung
 - d. HorneyAnswer: d

4. Someone who feels as though they are not living up to expectations would be described by Adler as having:
 - a. low self-realization
 - b. an Adlerian complex
 - c. an inferiority complex
 - d. low actualizationAnswer: d

5. According to Freud, the mind's three components are:
 - a. ego, id, superego
 - b. unconscious, moral, immoral
 - c. oral, anal, phallic
 - d. primary, secondary, tertiaryAnswer: d

6. The idea that you can assess someone's personality by studying their face is called:
 - a. phrenology
 - b. physiology
 - c. somatology
 - d. physiognomyAnswer: d

7. The complex is to girls as the complex is to boys.
- Electra, Oedipus
 - Oedipus, Electra
 - oral, phallic
 - phallic, oral
- Answer: a
8. The discovery that the heritability of the Big Five personality traits is around 40% – 50% suggests that:
- the environment plays no role in personality
 - genes play no role in personality
 - the environment plays an important role in personality
 - the Big Five traits account for about half of our personality
- Answer: c
9. Humanistic psychologists embraced the idea of:
- repression
 - free will
 - unconscious drives
 - the id
- Answer: b
10. According to Eysenck, extraverts seek to their arousal while introverts seek to their arousal.
- decrease, increase
 - hide, reveal
 - increase, decrease
 - reveal, hide
- Answer: c
11. Allport believed that traits could be organized into three levels:
- primary, secondary, tertiary
 - cognitive, emotional, physiological
 - id, ego, superego
 - cardinal, central, secondary
- Answer: d
12. The MMPI is used to measure:
- unconscious drives
 - the Big Five traits
 - personality and psychological disorders
 - leadership potential
- Answer: c

- 13.** Which of the following is NOT one of the Big Five traits?
- a. sense of humour
 - b. openness to experience
 - c. conscientiousness
 - d. extraversion
- Answer: a
- 14.** Freud founded the _____ approach to understanding human behaviour.
- a. palliative
 - b. psychodynamic
 - c. patronymic
 - d. psychedelic
- Answer: b
- 15.** The influence of parents on the personality of their children is:
- a. non-existent
 - b. weakest in early childhood
 - c. strongest in early childhood
 - d. consistent across the lifespan
- Answer: c
- 16.** What is special about “knockout” mice?
- a. they are very attractive
 - b. their DNA has been modified
 - c. they are easy to knock out
 - d. they are unusually aggressive
- Answer: b
- 17.** The aim of behavioural genetics is to learn about:
- a. the extent to which geneticists can modify people’s behaviour
 - b. the possibility of eradicating behavioural problems in children
 - c. the genetic and environmental influences on human behaviour
 - d. the ability of animals to learn language
- Answer: c
- 18.** Monozygotic is to _____ twins as dizygotic is to ___ twins.
- a. male, female,
 - b. female, male
 - c. fraternal, identical
 - d. identical, fraternal
- Answer: d
- 19.** Which of the following characteristics describe someone who, according to Maslow, is self-actualized?
- a. creativity

- b. confidence
 - c. spontaneity
 - d. all of the above Answer: d
20. According to Freud, children pass through 4 stages of psychosexual development. Which of the following shows the stages in the correct developmental order?
- a. oral, anal, phallic, latency
 - b. latency, oral, anal, phallic
 - c. phallic, anal, oral, latency
 - d. oral, phallic, latency, anal Answer: a
21. Projective tests claim to reveal information about:
- a. career aptitude
 - b. intellectual attainment
 - c. unconscious processes
 - d. parenting style Answer: c
22. Traits are defined as:
- a. physical characteristics that distinguish us from other people
 - b. relatively enduring characteristics that influence our behaviour across many situations
 - c. unconscious tendencies to act in different ways according to the situation
 - d. permanent personality tendencies that determine our behaviour in any situation Answer: b
23. Sheldon's theory that people with different body types have different personalities has been:
- a. supported by research
 - b. discredited
 - c. shown to be accurate for thin people but not overweight people
 - d. shown to be accurate for women but not for men Answer: b
24. Which of the following is not a defence mechanism?
- a. projection
 - b. regression
 - c. ingratiation
 - d. sublimation Answer: c
25. Rohan is self-disciplined, focused on achievement and keen to do his duty. He would be expected to score highly on:
- a. neuroticism
 - b. agreeableness
 - c. extraversion

- d. conscientiousness
Answer: d
26. The Barnum effect helps to explain people's belief in:
- fortune-telling
 - astrology
 - horoscopes
 - all the above
Answer: d
27. ___ are the basic biological units that transmit characteristics from one generation to the next:
- genes
 - neurons
 - glia
 - instincts
Answer: a
28. Which of the following would NOT be useful to a behavioural geneticist?
- family studies
 - case studies
 - adoption studies
 - twin studies
Answer: d
29. According to Freud, the id is to the ___ principle as the ego is to the _____ principle.
- aggressive, sexual
 - sexual, aggressive
 - pleasure, reality
 - reality, pleasure
Answer: c
30. Lana is friendly, always willing to help others and compassionate. We would expect Lana to score highly on:
- extraversion
 - agreeableness
 - neuroticism
 - openness to experience
Answer: b
31. Consider the following statement (s) is related to the features of Sufism
- They recognize the value of repetition of God's name and sometimes resort to music of a loving devotional character as an aid to concentration.
 - Instead of depriving God of form and attributes they impute to him the qualities of effulgence, love, mercy, generosity and immanence.
 - Instead of inculcating fear of the wrath of God, they put forward the ideal of securing union with Him by pursuing the path of perfect love.
- Which of the following statement (s) is/are correct?

- A. Only I
 B. Only II
 C. I, II & III
 D. None of the above
 Ans: C
32. Which of the following was the first Sufi Order in Indian Subcontinent?
 A. Chishti
 B. Qadiriyya
 C. Suhrawardiyya
 D. Naqshbandi
 Ans: A
33. Which was/were not the basic devotional practices of Chisti order of Sufi?
 A. Reciting the names of Allāh loudly, sitting in the prescribed posture at prescribed times (dhikr-i dzahir)
 B. Reciting the names of Allāh silently (dhikr-i khafī)
 C. Regulating the breath (pās-ianfās)
 D. Lifelong of spiritual confinement in a lonely corner or cell for prayer and contemplation (čilla)
 Ans: D
34. Which is/are the correct principles of Chisti Order?
 I. Unselfish service to mankind
 II. Living for Allah alone
 III. Maintaining complete trust in Him
 IV. Inexhaustible generosity and forgiveness
 Code:
 A. Both I & II
 B. Both I & III
 C. Both III & IV
 D. I, II, III & IV
 Ans: D
35. Which of the following is/are correct reasons for the extensive development of the Chishti order in India?
 A. The strong disapproval of mixing with the Sultans, princes or nobles by the Chishti Shaikhs together with establishing close contacts with the poor and the downtrodden.
 B. Their uncompromising attitude towards all forms of political oppression and social injustice.
 C. Their bold stand in favour of Sama, which has been vehemently, criticized by the orthodox Ulama and upholders of some other orders.
 D. All of the above
 Ans: D

- 36.** What do you mean by Wahdat al-Wujud?
- Unity of Being
 - Unity of Humanity
 - Unity of God
 - Unity of Thought
- Ans: A
- 37.** Which of the following was/were the doctrine of Sufism?
- Meditation & Good action
 - Repentance of sins
 - Performance of prayers
 - Charity & Suppression of passions by ascetic practices
- Code:
- Only I
 - Only II
 - I, II & III
 - I, II, III & IV
- Ans: D
- 38.** Who translated Chintamani Bhatt's Suka Saptati into Persian from Sanskrit and gave it the title Tuti-nama?
- Khwaja Qutbuddin Bakhtiyar Kaki
 - Baba Farid
 - Khwaja Ziauddin Nahkashabi
 - None of the above
- Ans: C
- 39.** Who among the following Sufi Saint popularly known as Makhdum-i-Jahaniyan (Lord of the world's people)?
- Sufi Sayyid Jalaluddin Bukhari
 - Shaikh Fakhruddin Ibrahim Iraqhi
 - Shaikh Sharufuddin Ahmad Yaha Munyari
 - Mir Sayyid Ali Hamadani
- Ans: A
- 40.** Who was the composer of treatise called Hamat (Flashes) which constitutes a very impressive commentary on the Unity of Being (Wahdat-al- Wujud)?
- Sufi Sayyid Jalaluddin Bukhari
 - Shaikh Fakhruddin Ibrahim Iraqhi
 - Shaikh Sharufuddin Ahmad Yaha Munyari
 - Mir Sayyid Ali Hamadani
- Ans: B

- 41.** Postcolonialism refers to
- a historical phase undergone by Third World countries after the decline of colonialism
 - a slave mindset
 - an important tenet of structuralism
 - the deconstructive "différance" Answer: a
- 42.** Which sub-specialty in postcolonial criticism analyzes the importance of human constructions of physical with mental spaces, especially in political contexts?
- spatial/geographical studies
 - psycho-mythic studies
 - ecofeminism
 - both a and b Answer: a
- 43.** Homi Bhabha's most significant concept is
- postcolonial interpellation
 - the objective correlative
 - hybridity
 - orientalism Answer: c
- 44.** The claim of Robert C. J. Young is that postcolonialism
- looks "at the world from the other side of the photograph"
 - is historically inaccurate
 - is the product of leftist propaganda
 - all of the above Answer: a
- 45.** Postcolonial critics speak primarily of
- slavery in ancient cultures
 - the conquests of Spain
 - Euro-American imperialism
 - African-African slavery Answer: c
- 46.** Chinua Achebe attacks for its racism
- Adventures of Huckleberry Finn
 - Frankenstein
 - Heart of Darkness
 - The "Nigger" of the Narcissus Answer: c

- 47.** The departure from a homeland by a people is called by postcolonial critics
- diaspora
 - emigration
 - inundation
 - interpellation
- Answer: a
- 48.** Postcolonial criticism has been important to
- Third-World feminism
 - deconstruction
 - structuralism
 - psychological approaches
- Answer: a
- 49.** According to Gayatri Chakravorty Spivak, a "subaltern" is
- usually a woman
 - a Third-World denizen
 - multiply oppressed
 - all of the above
- Answer: d
- 50.** The motif of a "City Upon a Hill" has been used by
- the author of the Gospel of Matthew
 - John Winthrop in "A Model for Christian Charity"
 - John F. Kennedy in his Inaugural Address
 - all of the above
- Answer: d
- 51.** According to the text, the lower level of explanation corresponds to _____ processes.
- social
 - cultural
 - biological
 - interpersonal
- Answer: c
A psychologist exploring the impact of a new drug on activity in the brain is working on the Answer: c level of explanation.
- 52.** Psychology is defined as the scientific study of:
- people and things
 - emotions and beliefs
 - perception and religion

- d. mind and behavior
Answer: d
53. The scientific approach is more useful at answering questions about _____ than questions about ____.
- a. lower
 - b. middle
 - c. upper
 - d. all of the above
Answer: a
54. A psychologist studying what makes people laugh in different countries around the world is working on the _____ level of explanation.
- a. lower
 - b. middle
 - c. higher
 - d. none of the above
Answer: c
55. Different people react differently to the same situation. This is referred to as:
- a. multiple determinants
 - b. nativism
 - c. the Simpson effect
 - d. individual differences
Answer: d
56. ____ is to nature as _____ is to nurture.
- a. environment, genes
 - b. conscious, unconscious
 - c. inaccuracy, accuracy
 - d. biology, experience
Answer: d
57. The term "tabula rasa" highlights the importance of ____ in shaping behaviour.
- a. genes
 - b. experience
 - c. nature
 - d. predestination
Answer: b
58. The Greek philosopher _____ believed that knowledge is acquired through experience and learning.
- a. Archimedes
 - b. Rousseau
 - c. Plato
 - d. Aristotle
Answer: d
59. ____ is to nature as _____ is to nurture.
- a. Plato, Aristotle

- b. Aristotle, Plato
 - c. Pliny, Archimedes
 - d. Stavros, PlinyAnswer: a
- 60 __is the belief that the mind is fundamentally differentfrom the body.
- a. mindism
 - b. dualism
 - c. centralism
 - d. specialismAnswer: b
- 61 The school of psychology whosegoal was to identify the basic elements of experience was called:
- a. experientialism
 - b. dualism
 - c. functionalism
 - d. structuralism Answer: d
- 62 Which of the following was mostclosely associated with the structuralist school of psychol-ogy?
- a. Titchener
 - b. James
 - c. Descartes
 - d. WatsonAnswer: a
- 63 Darwin's theory of_____arguedthat physiological characteristics evolve because they are useful tothe organism.
- a. extreme usefulness
 - b. natural endowment
 - c. natural selection
 - d. natural wellbeingAnswer: c
- 64 __was to structuralism as___was to functionalism.
- a. Wundt, Titchener
 - b. Wundt, James
 - c. James, Titchener
 - d. Milner, ThompsonAnswer: b
- 65 Freud championed _____ psychology.
- a. psychodynamic
 - b. cultural
 - c. conscious
 - d. biodynamicAnswer: a

- 66** Which school of psychology believes that it is impossible to objectively study the mind?
- functionalism
 - behaviorism
 - humanism
 - socialism
- Answer: b
- 67** Receiving an electric shock would be an example of a _____ whereas being frightened would be an example of a _____.
- stimulus, response
 - punishment, reward
 - reaction, emotion
 - reinforcement, stimulus
- Answer: a
- 68** Dr Pula wants to explore differences in child-rearing practices between British and Chinese parents. She is most likely a:
- cognitive psychologist
 - physiological psychologist
 - cognitive-ergonomic psychologist
 - social-cultural psychologist
- Answer: d
- 69** Nature is to _____ as nurture is to _____.
- environment/genes
 - conscious/unconscious
 - genes/environment
 - unconscious/conscious
- Answer: c
- 70** Freud emphasized the role of _____ in shaping people's personality.
- free will
 - unconscious desires
 - hormones
 - group influence
- Answer: b
- 71** Evolutionary psychology has its roots in:
- behaviourism
 - collectivism
 - functionalism
 - structuralism
- Answer: c
- 72** Most human behaviour:
- can be easily explained
 - has multiple causes
 - stems from unconscious desires
 - depends on social influence
- Answer: b

74. forensic psychologist would be most likely to study:
- the accuracy of eyewitness memory
 - the impact of advertising on shopping behaviour
 - the effect of hormones on decision making
 - gender differences in learning styles
- Answer: a
75. The behaviourists rejected introspection because:
- it was too slow
 - it invaded people's privacy
 - it yielded too much data
 - it was too subjective
- Answer: d
76. Another term for reinforcement is:
- stimulus
 - reward
 - response
 - condition
- Answer: b
77. East Asian cultures tend to be more oriented toward ___ while Western cultures tend to be more oriented toward__.
- individualism/collectivism
 - collectivism/individualism
 - cultural norms/social norms
 - social norms/cultural norms
- Answer: b
78. Watson and Skinner both contributed to which school of psychology?
- functionalism
 - cognitive
 - social-cultural
 - behaviourism
- Answer: d
79. Which field of psychology would be most likely to study the influence of over-crowding on conformity?
- personality
 - cognitive
 - clinical
 - social
- Answer: d
80. The child having the difficulty in picking up objects is suspected to have
- Lower level of intellectual function
 - Sight impairment
 - Speech impairment
 - Locomotor impairment
- Answer: D

81. Which philosophy developed the monitorial system in classrooms?

- a. Vedic
 - b. Vedant
 - c. Islam
 - d. Buddhism
- Answer: C

82. Match the following :

List – I (Thinker)	List – II (Type of Education)
I. Gandhi	1. Shantiniketan
II. Tagore	2. Integral Yoga
III. Aurobindo	3. Gurukul
IV. Vivekananda	4. Man making education
5. Wardha Scheme	

Code :

I III III IV(A) 5 1 2 4

(B) 5 1 4 2

(C) 3 4 2 5

(D) 4 2 3 5

Answer: A

83. If Ram is taller than Mohan and Mohan is taller than Sohan, Ram is the tallest. This statement comes under which type of reasoning ?

- a. Inductive Reasoning
 - b. Deductive Reasoning
 - c. Linear Reasoning
 - d. Conditioned Reasoning
- Answer: C

84. When a poor rural girl hailing from a socially disadvantaged family gets scholarship for higher studies and then lands in a high paid job in city it is not an instance of education becoming

- a. a vehicle for social mobility
 - b. a tool for gender justice
 - c. a vehicle for geographical mobility
 - d. an instrument for social stratification
- Answer: D

85. The policy of reservation of seats in higher education and in Government employment is an example for.

- a. Sponsored mobility
 - b. Contest mobility
 - c. Cultural mobility
 - d. Geographical mobility
- Answer: A

86. What does the Counsellor do in "Observation for Recording" and "Observation for Rating"?

- I. In Observation for Recording, the Counsellor acts like a versatile camera.
- II. In Observation for Recording, the Counsellor records everything unmindful of the distraction

caused to the client.

- III. In Observation for Rating, the Counsellor does not observe the client while indulged in rating.
- IV. In Observation for Rating, the Counsellor judges and rates the brain, while still observing the client.

Choose the correct answers from the code given below:

- a. I and IV
 - b. II and III
 - c. I and III
 - d. III and IV
- Answer: A

87. A face to face, informal interaction is considered the best technique for collecting information about the client and his/her problem. How?

- a. It helps to get first hand information about the client and his/her problem.
 - b. It is very easy to organise and conduct an interview with the client.
 - c. The interview can be videographed.
 - d. It is flexible and makes the client feel comfortable.
- Answer: A

88. What is meant by the term "curriculum"?

- a. The subject of study offered by an educational institution.
 - b. Theory and Practical courses to be completed to qualify for a level of education.
 - c. Organised whole of learning and other experiences provided by educational institutions, to realize set goals.
 - d. The prescribed syllabi in the various subjects, plus practical courses and project/ dissertation.
- Answer: C

89. What are the uses of System Analysis, when applied to classroom instruction as a sub system of the curriculum?

- I. It helps to design classroom instruction differently.
- II. It helps to assess the effectiveness of the existing instructional design.
- III. It helps the teacher to verify results and get feedback.
- IV. It helps as a novel method of reviewing classroom instruction.

Choose the correct answers from the code given below:

- a. III, IV and I
 - b. I, II and III
 - c. IV, I and II
 - d. II, III and IV
- Answer: B

90. Tests that do not require the use of language of the subjects but responses are in the form of activities are called as

- a. Verbal tests
 - b. Non-verbal tests
 - c. Performance tests
 - d. None of the above
- Answer: C

91. Identity versus role confusion is a characteristic of

- a. Childhood stage

- b. Adolescence stage
 - c. Infancy stage
 - d. Early childhood stage Answer: B
92. Who is a famous psycholinguistic?
- a. Gardner
 - b. Alan Newell
 - c. A. Simon
 - d. Noam Chomsky Answer: d
93. The effectiveness of a multi-media approach in teaching can be answered through
- a. Experimentation
 - b. Survey
 - c. Case-studies
 - d. Longitudinal studies Answer: A
94. Who is the author of book Principle of Psychology?
- a. Willhelm Wundt
 - b. Charles Darwin
 - c. Sigmund Freud
 - d. William James Answer: d
95. In which year Sigmund Freud published the book 'The Ego' and 'The Id'?
- a. 1927
 - b. 1972
 - c. 1980
 - d. 1908 Answer a
96. First issue of cognitive neuroscience appears in the year.
- a. 1967
 - b. 1989
 - c. 1997
 - d. 1978 Answer b
97. Psychology is a _____.
- a. A natural science
 - b. A physical science
 - c. A biological science
 - d. A social science Answer: D
98. Psychology as a 'Science of Mind', defined by _____ school of psychology.
- a. Psychoanalysts
 - b. Behaviourists
 - c. Functionalists

d. Ancient Greek Philosophers Answer: D

99. In the year _____ the Scientific Psychology was first accepted.

a. 1779

b. 1679

c. 1879

d. 1889 Answer: C

100. Who is the father of Experimental Psychology.

a. Wilhelm Wundt

b. Sigmund Freud

c. C.G. Jung

d. E.B. Titchener Answer: A

101. Psychology can be literally defined as the__.

(a) Science of mind

(b) Science of behaviour

(c) Science of soul

(d) Science of consciousness Answer: C

102. J.B. Watson, the founder and father of behaviouristic school of psychology defined 'Psychology' as the science of _____.

(a) Soul

(b) Consciousness

(c) Mind

(d) Behaviour Answer: D

103. E.B. Titchener (1867-1927) defined 'Psychology' as the science of _____.

(a) Conscious Experience

(b) Science of Mind

(c) Science of Experience

(d) Science of Soul Answer: A

104. Who defined 'Psychology' as the scientific study of activities of organism in relation to its environment?

(a) J.B Watson

(b) Sigmund Freud

(c) Wood worth

(d) William James Answer: C

105. "S-R" concept was first established by _____.

(a) J.B Watson

- (b) Wilhelm Wundt
- (c) William James
- (d) I.P. PavlovAnswer: A

106. Rejecting the concept of “S-R” connectionism, further “S-O-R” concept was developed by _____.

- (a) Woodworth
- (b) C.G. Jung
- (c) E.B. Titchener
- (d) Sigmund FreudAnswer: A

107. Who defined “Psychology as the science of immediate experience with consciousness being the main subject matter”?

- (a) E.B. Titchener
- (b) William James
- (c) Sigmund Freud
- (d) Wilhelm WundtAnswer: a&d

108. Who is the founder and principal proponent of psychoanalysis__.

- (a) Sigmund Freud
- (b) E.B Titchener
- (c) C.G. Jung
- (d) Alfred AdlerAnswer: A

109. Who is the psychologist who constructed the first intelligence test?

- (a) William James
- (b) J. B. Watson
- (c) William Mc Dougall
- (d) Alfred BinetAnswer: D

110. The occurrence of ‘O’ in ‘S-O-R’ concept is responsible in regulating the behavior of the organism and making psychological activity

- (a) Complex
- (b) Dynamic
- (c) Fixed
- (d) PuzzledAnswer: B

111. Anything which evokes a response in the Organism is called.

- (a) Stimulus
- (b) Thing

- (c) Situation
- (d) IncidenceAnswer: A

112. The method of 'Field Observation' is always considered as_____.

- (a) Subjective
- (b) Complex
- (c) Neutral
- (d) ObjectiveAnswer: D

113. To study Abnormal Psychology means, to study mainly the nature of_.

- (a) Normality of mind
- (b) Unconscious level of mind
- (c) Subconscious level of mind
- (d) Abnormality of mindAnswer: B

114. Clinical Psychology deals withthe practical aspect of_____.

- (a) Abnormal Psychology
- (b) Educational Psychology
- (c) Child Psychology
- (d) Experimental PsychologyAnswer: A

115. Sigmund Freud is regarded asthe father of,in psychology. (a) Gestalt school

- (b) Behaviouristic school
- (c) Functionalistic school
- (d) Psychoanalytic schoolAnswer: D

116. Ebbinghuas, had done thepioneering experiments on

- (a) Perception
- (b) Emotion
- (c) Memory
- (d) ThinkingAnswer: C

117. Science is invariably characterised by_____.

- (a) Its methodology
- (b) Its theory
- (c) Its fact
- (d) Its hypothesisAnswer: A

118. General psychology deals with_____.

- (a) Personality
- (b) Development
- (c) Intelligent
- (d) Fundamentals of all branches of psychology Answer: D

119. Industrial Psychology is_____.

- (a) Theoretical Psychology
- (b) Applied Psychology
- (c) Educational Psychology
- (d) Abnormal Psychology Answer: B

120. Developmental Psychology studies_.

- (a) Personality
- (b) Motivation
- (c) Intelligence
- (d) Various stages of development of man Answer: D

121. Abnormal Psychology is concerned with_____.

- (a) Developmental stages of individual
- (b) Diagnosis of abnormal behaviour
- (c) Abnormal behaviour and its causes
- (d) Treatment of abnormal behaviour Answer: C

122. Social Psychology deals with_____.

- (a) Behaviour of an individual at work
- (b) Behaviour and experience in social situations
- (c) Behaviour of ethnic groups
- (d) Abnormal Behaviour of people Answer: B

123. Psychology is the science studying the behaviour of_____.

- (a) Mankind
- (b) Living Organism
- (c) Animals
- (d) Plants Answer: B

124. Some of the most useful knowledge of human perception has borrowed from_____.

- (a) Chemistry
- (b) Physics
- (c) Sociology

(d) ZoologyAnswer: B

125. A major part of developmental psychology is devoted to the understanding of behaviour of _____.

- (a)** Children
- (b)** Adolescents
- (c)** Women
- (d)** Old peopleAnswer: A

126. Who is the founder of 'Individual Psychology'?

- (a)** David Hull
- (b)** Thorndike
- (c)** Alfred Binet
- (d)** Alfred AdlerAnswer: D

127. From the following pioneered psychologist who is associated with Behaviourism?

- (a)** B.F. Skinner
- (b)** William James
- (c)** Megde Arnold
- (d)** David HullAnswer: A

128. Who is recognised as the father of psychoanalysis?

- (a)** Sigmund Freud
- (b)** Tolman
- (c)** Alfred Adler
- (d)** William JamesAnswer: A

129. Wolf Gang Kohler was associated with _____ school of psychology.

- (a)** Social Psychology
- (b)** Gestalt Psychology
- (c)** Industrial Psychology
- (d)** Educational PsychologyAnswer: B

130. The "Law of effect" was coined by _____.

- (a)** Skinner
- (b)** Pavlov
- (c)** Kohler
- (d)** ThorndikeAnswer: C

131. Archetype is a terminology associated with _____.

- (a) Jung
 - (b) Freud
 - (c) Adler
 - (d) Skinner
- Answer: C

132. Who established the first experimental psychological laboratory?

- (a) Sigmund Freud
 - (b) B.F. Skinner
 - (c) Evan Pavlov
 - (d) Wilhelm Wundt
- Answer: D

133. Who is the valuable contributor in insightful learning?

- (a) Thordike
 - (b) B.F. Skinner
 - (c) Evan Pavlov
 - (d) Kohler
- Answer: D

134. The most pioneered contributor to Behavioural school of psychology is_____.

- (a) Freud
 - (b) Allport
 - (c) Watson
 - (d) Fechner
- Answer: C

135. Wilhelm Wundt established the first laboratory of experimental psychology at_____.

- (a) Greenwich
 - (b) Zurich
 - (c) Leipzig
 - (d) Munich
- Answer: C

136. From the following psychologist, who rejected introspection as a method of psychology__.

- (a) B.F. Skinner
 - (a) Fulton
 - (b) Cattell
 - (c) J.B. Watson
- Answer: D

137. In which method of study of psychology, independent and dependent variable are important elements.

- (a) Introspection Method
- (b) Experimental Method
- (c) Observational Method

(d) Case History Method
Answer: B

138. In _____ method of study in psychology, passive study and analysis of human behaviour is usually done.

(a) Introspection Method

(b) Experimental Method

(c) Observational Method

(d) Genetic Method
Answer: C

139. In the simplest experimental method, 'E' manipulates ____.

(a) One Variable

(b) Two Variables

(c) Three Variables

(d) Four Variables
Answer: A

140. What it is called, when more than one independent variable works in an experimental situation.

(a) Situational Crisis

(b) Interaction

(c) Multisituational Effect

(d) Variable Crisis
Answer: B

141. Who has been considered as the father of psychoanalysis method of study__?

(a) Sigmund Freud

(b) E.B Titchener

(c) C.G. Jung

(d) Alfred Adler
Answer: A

142. Who has been credited as the first developer of first intelligence test and made important contributions to our understanding of the thought process?

(a) William James

(b) Alfred Binet

(c) William McDougall

(d) J.B. Watson
Answer: B

143. The concepts like "Introspection" and "Conscious Experience" are associated with__.

(a) Functionalism

(b) Behaviourism

(c) Structuralism

(d) Gestalt Psychology
Answer: C

- 144.** A Provisional theory to explain observed facts is known as_____.
- (a) Construct
 - (b) Theory
 - (c) Hypothesis
 - (d) Event Answer: C
- 145.** ___ is the least noticeable value of stimulus.
- (a) Stimulus Threshold
 - (b) Response Threshold
 - (c) Hypothesis
 - (d) Problem Answer: A
- 146.** ___ approach emphasizes the role of instinctual processes and their modification in the course of interaction with the society.
- (a) Dynamic and Psychoanalytic Approach
 - (b) Cognitive Approach
 - (c) Holistic Approach
 - (d) Stimulus-Response Behaviouristic Approach Answer: A
- 147.** The system which still survives very nearly in its rigid forms is
- (a) Dynamic and Psychoanalytic
 - (b) Approach
 - (c) Stimulus-Response Behaviouristic Approach
 - (d) Existential Approach Answer: C
- 148.** _ approach is popularly rooted in Gestalt psychology.
- (a) Wholistic Approach
 - (b) Cognitive Approach
 - (c) Dynamic and Psychoanalytic Approach Holistic Approach
 - (d) Existential Approach Answer: B
- 149.** The perspective which is concerned with characteristic changes that occur in people as they mature is known as_____.
- (a) Developmental Perspective
 - (b) Biological Perspective
 - (c) Humanistic Perspective
 - (d) Psychoanalytic Perspective Answer: A
- 150.** For the first time, the word 'Psychology' is introduced by__.
- (a) Rudolf Goekle
 - (b) William James

- (c) Sigmund Freud
- (d) C. G. JungAnswer: A

151. Rudolf Goekle used the word 'Psychology' for the first time in theyear_.

- (a) 1590 AD
- (b) 1095 AD
- (c) 1950 AD
- (d) 1509 ADAAnswer: A

152. Which branch of psychologydeals with the study of animal behaviour?

- (a) Social Psychology
- (b) Comparative Psychology
- (c) Abnormal Psychology
- (d) Differential PsychologyAnswer: B

153. Woodworth's approach todefine Psychology is_____.

- (a) Dynamic
- (b) Constant
- (c) Fluctuating
- (d) simpleAnswer: A

154. Who is the Founder of GestaltPsychology_?

- (a) Kurt Koffka
- (b) Max wertheimer
- (c) Kurt Lewin
- (d) Wolfgang KohkerAnswer: B

155. ___ field of psychologyfocuses on the potential role of evolution in behaviour.

- (a) Developmental Psychology
- (b) Physiological Psychology
- (c) Evolutional Psychology
- (d) Cognitive PsychologyAnswer: C

156. Which perspective of psychology emphasizes the overtbehaviour of the individual?

- (a) Developmental Perspective
- (b) Behaviouristic Perspective
- (c) Humanistic Perspective
- (d) Psychoanalytic PerspectiveAnswer: B

157. Thought process is the maincomponent of _____ perspective.

- (a) Gestalt Perspective
 - (b) Biological Perspective
 - (c) Humanistic Perspective
 - (d) Cognitive Perspective
- Answer: D

158. ___ perspective focuses on changes in behaviour and cognitive processes over the life span.

- (a) Developmental Perspective
 - (b) Biological Perspective
 - (c) Humanistic Perspective
 - (d) Psychoanalytic Perspective
- Answer: A

159. 'Behaviour can be influenced by social and cultural factors', the ___ perspective of psychology emphasizes it.

- (a) Developmental Perspective
 - (b) Biological Perspective
 - (c) Humanistic Perspective
- Answer: D

160. The frameworks for explaining various events or processes in science is known as ____.

- (a) Facts
 - (b) Theories
 - (c) Models
 - (d) Hypothesis
- Answer: B

161. Emphasizing what comes to mind first or most readily/quickly is known as ____.

- (a) Heuristic
 - (b) Critical Thinking
 - (c) Intuitive Thought
 - (d) Confirmation Bias
- Answer: A

162. A systematic study of facts according to a reliable and correct method of study is called a ____.

- (a) Scientific Study
 - (b) Biological Study
 - (c) Social Technique
 - (d) Methodology
- Answer: A

163. The concept of building blocks of consciousness was laid by

- (d) Socio-cultural Perspective
- (a) Watson
- (b) Wundt

- (c) Freud
- (d) Jung Answer: B

164. Who is the first woman, awarded Ph. D in psychology?

- (a) Anna Freud
- (b) Margaret Floy Washburn
- (c) Melanie Klein
- (d) Karen Horney Answer: B

165. In the year 1913, C. G. Jung, established his school after separated from Sigmund Freud, which is known as_____.

- (a) Psychoanalysis School
- (b) Individual Psychology
- (c) Psychoanalytical School
- (d) Child Psychology Answer: C

166. The____law of psychology deals with least noticeable difference in differentstimuli.

- (a) Getsalt Law
- (b) Watson Law
- (c) Binet –Simon Law
- (d) Weber-Fechner Law Answer: D

167. Gestalt psychology taking itsname from the German word 'Gestal' which literally means

- _____.
- (a) World
 - (b) Whole
 - (c) A part
 - (d) Whole vs part Answer: B

168. Who promoted the formulationof Elementism?

- (a) Sigmund Freud
- (b) Aristotle
- (c) Plato
- (d) Paul Broca Answer: B

169. The concept of Rationalism isdeveloped by_____.

- (a) Sigmund Freud
- (b) Aristotle
- (c) Plato

(d) Paul Broca
Answer: C

170. Who proposed that mind and body are two separate entities and interact with each other?

(a) Rene Descartes

(b) Aristotle

(c) Plato

(d) Paul Broca
Answer: A

171. Who is an important functionalistic psychologist who was particularly interested in consciousness, memory and emotions?

(a) John Dewey

(b) William James

(c) Thorndike

(d) Skinner

172. The modern psycholinguistic theory was developed by__.

(a) Chomsky

(b) Kohler

(c) Piaget

(d) Kohlberg
Answer: A

173. What is the name of the person who established the School of Individual Psychology?

(a) Adler

(b) Jung

(c) Anne Freud

(d) Eric Fromm
Answer: A

174. Who is a pioneer contributor to the Cognitive Psychology?

(a) Jean Piaget

(b) Kohler

(c) Chomsky

(d) Kohlberg
Answer: A

(b) E. B. Titchner

(c) J. B. Watson

(d) William James
Answer: D

175. Abraham Maslow and Carl Roger were the founder of__approach.

(a) Developmental approach

(b) Biological approach

- (c) Humanistic approach
 - (d) Socio-cultural approach
- Answer: C

176. Hope, happiness, optimism and flow taken together as__.

- (a) Cognitive psychology
 - (b) Positive psychology
 - (c) Humanistic psychology
 - (d) Evolutionary psychology
- Answer: B

177. Wilson was the strong supporter of__ plays vital role for shaping of behaviour.

- (a) Genes
 - (b) Culture and environment
 - (c) Past life
 - (d) God or almighty
- Answer: A

178. The role of brain, body chemical, central nervous system, neural mechanism, etc., are considered the__ branch of psychology.

- (a) Cognitive psychology
 - (b) Positive psychology
 - (c) Neuropsychology
 - (d) Evolutionary psychology
- Answer: C

179. Who proposed the famous PASS theory on psychology?

- (a) Binet-Simon
 - (b) Cattell
 - (c) J. P Das
 - (d) Thurstone
- Answer: C

180. The first psychological laboratory was established in India at__.

- (a) Delhi University
 - (b) Bombay University
 - (c) Calcutta University
 - (d) Banaras Hindu University
- Answer: C

181. First Psychology department started in the department of philosophy at Calcutta University in the year_____.

- (a) 1905
 - (b) 1916
 - (c) 1890
 - (d) 1780
- Answer: B

182. First psychology Department in India established by the headship of.

- (a) Prof. K. D. Brata
 - (b) Prof. N. N. Sengupta
 - (c) Prof. G. Gupta
 - (d) Prof. Ganguli
- Answer: B

183. The famous book 'Principles of Psychology' was authored by__.

- (a) Wilhelm Wundt
 - (b) E. B. Titchner
 - (c) J. B. Watson
 - (d) William James
- Answer: D

184. According to J. B. Watson, 'Psychology is a Science of ____'.

- (a) Soul
 - (b) Mind
 - (c) Behaviour
 - (d) Brain
- Answer: C

185. Some of our most useful knowledge of human perception borrowed from__.

- (a) Physics
 - (b) Chemistry
 - (c) Sociology
 - (d) Mathematics
- Answer: A

186. The structuralist intended to identify the building blocks of__.

- (a) Consciousness
 - (b) Subconsciousness
 - (c) Unconsciousness
 - (d) None of the above
- Answer: A

187. Who discovered that all mental processes are not accompanied by mental imagery?

- (a) Wilhelm Wundt
 - (b) E. B. Titchner
 - (c) J. B. Watson
 - (d) Oswald Kulpe
- Answer: D

188. The functionalist strongly influenced by__.

- (a) Wilhelm Wundt
- (b) Charles Darwin

- (c) J. B. Watson
- (d) William James Answer: B

189. Who is credited for setting up the first psychological laboratory in United States?

- (a) Willhelm Wundt
- (b) Charles Darwin
- (c) J. B. Watson
- (d) William James Answer: D

190. What is the meaning of 'Flock' according to Gestalt psychology?

- (a) The whole
- (b) Perceptual unit
- (c) Perception
- (d) Closure Answer: B

191. Who is the father of psychodynamic theory?

- (a) Willhelm Wundt
- (b) Charles Darwin
- (c) Sigmund Freud
- (d) William James Answer: C

192. Self actualisation is proposed by _____.

- (a) Carl Roser
- (b) Abraham Mashlow
- (c) Sigmund Freud
- (d) William James Answer: B

193. Computer provided a new way to conceptualise mental processes and to develop detail theories which is known as _____.

- (a) Cognitive Approach
- (b) Behavioural Approach
- (c) Gestalt Approach
- (d) Information Processing Approach Answer: D

194. The belief that complex behaviours can be understood as the sum of several simpler one's is called:

- a. reductionism
- b. functionalism
- c. introspection
- d. animism Answer: A

195. Wundt's primary method of research was:

- a. experimentation
 - b. autoethnography
 - c. introspection
 - d. lesioning
- Answer: C

196. Jung stated that humans possess both a _unconscious and a__unconscious:

- a. shadow/manifest
 - b. personal/collective
 - c. introvert/extravert
 - d. phenomenal/latent
- Answer: B

197. Remembering that the capital of Canada is Ottawa requires:

- a. sensory memory
 - b. semantic memory
 - c. episodic memory
 - d. procedural memory
- Answer: B

198. Which of the following psychologists was NOT a behaviourist?

- a. Watson
 - b. Thorndike
 - c. Skinner
 - d. Maslow
- Answer: D

199. Positive reinforcement involves___something to increase a response whereas negative reinforcement involves__something.

- a. repeating/increasing
 - b. adding/removing
 - c. removing/adding
 - d. increasing/repeating
- Answer: B

200. Two kinds of learning studied by behaviourists are:

- a. classical conditioning and operant conditioning
 - b. manifest learning and latent learning
 - c. conscious learning and unconscious learning
 - d. operant conditioning and instrumental conditioning
- Answer: A

201. Which of the following is NOT a theory of dreaming?

- a. expectation fulfillment
 - b. activation-synthesis
 - c. threat-simulation
 - d. elucidatory consciousness
- Answer: D

202. The brain has four lobes: occipital, frontal, and ____.

- a. sympathetic, parasympathetic
- b. autonomic, somatic
- c. temporal, parietal
- d. visual, auditory

Answer: C

203. A psychologist who practices Gestalt Therapy would most likely be a(n):

- a. humanist
- b. behaviourist
- c. evolutionist
- d. cognitivist

Answer: A

204. A psychologist primarily interested in mental processes such as memory and perception would most likely be a(n):

- a. humanist
- b. behaviourist
- c. evolutionist
- d. cognitivist

Answer: D

205. Which of the following topics would be of least interest to a biological psychologist?

- a. hunger
- b. thirst
- c. free will
- d. sleep

Answer: C

206. William James worked during the:

- a. late 20th century
- b. late 19th century
- c. middle ages
- d. the 1700s

Answer: B

207. Freud argued that dreams have both _____ content and _____ content.

- a. Freudian, Jungian
- b. conditioned, unconditioned
- c. latent, manifest
- d. somatic, autonomic

Answer: C

208. In Pavlov's work dogs salivated naturally in response to being given meat powder.

In this situation, salivation is the while the meatpowder is the.

- a. UCR, UCS
 - b. UCS, UCR
 - c. CS, CR
 - d. CR, CSA
- Answer: A

209. Which of the following was a humanistic psychologist?

- a. Freud
 - b. Watson
 - c. Wernicke
 - d. Rogers
- Answer: D

210. What are the two parts of the autonomic nervous system?

- a. somatic, autonomic
 - b. reflexive, responsive
 - c. sympathetic, parasympathetic
 - d. frontal, occipital
- Answer: C

211. MBTI stands for:

- a. Manifold Barometric Temperature Indicator
 - b. Multiple Behavioural Theories Instrument
 - c. Myers Briggs Type Indicator
 - d. Maslow Bosun Trend Indicator
- Answer: C

212. Which lobe of the brain is also known as the auditory cortex?

- a. frontal
 - b. temporal
 - c. occipital
 - d. parietal
- Answer: B

213. Which of the following is NOT associated with Freud?

- a. id
 - b. ego
 - c. shadow
 - d. super-ego
- Answer: C

214. In Seligman's ABCDE model of learned optimism, B stands for:

- a. belief
 - b. behaviour
 - c. brain
 - d. blessing
- Answer: A

215. __ needs were at the bottom of Maslow's pyramid/hierarchy.

- a. safety
- b. self actualization
- c. esteem
- d. physiologicalAnswer: D

216. The idea that human behaviour may be the product of natural selection is central to:

- a. humanistic psychology
- b. evolutionary psychology
- c. cognitive psychology
- d. behavioural psychologyAnswer: B

217. The movement known as radical behaviourism is most closely associated with:

- a. Watson
- b. Thorndike
- c. Pavlov
- d. SkinnerAnswer: D

218. Intrinsic motivation refers to:

- a. enjoying a task for its own sake
- b. being motivated by money and/or other rewards
- c. enjoying a task because it meets physical needs
- d. motivation that can only be experienced indoorsAnswer: A

219. Remembering what you ate for supper yesterday requires:

- a. sensory memory
- b. episodic memory
- c. procedural memory
- d. semantic memoryAnswer: B

220. According to Freud the _____ content of a dream relates to the person's unconscious wishes.

- a. shadow
- b. lateral
- c. spreading
- d. latentAnswer: D

221. Humanistic psychology emerged during which decade?

- a. 1930s
- b. 1950s
- c. 1970s
- d. 1990sAnswer: B

222. In Pavlov's work, when dogs were trained to salivate to the sound of a bell that sound was the:

- a. UCS

- b. UCR
- c. CS
- d. CRAnswer: C

223. Another term for thinking about thinking is:

- a. metacognition
- b. perception
- c. mediation
- d. self-regulationAnswer: A

224. Comorbidity occurs when:

- a. several members of a family have the same mental health issue
- b. an individual spends too much time thinking about death
- c. a person suffers from more than one disorder at the same time
- d. nothing can be done to prevent a disorder from occurringAnswer: C

225. In OCD, _____ are to thoughts as _____ are to actions.

- a. opinions, convictions
- b. obsessions, conditions
- c. obsessions, compulsion
- d. compulsions, obsessionsAnswer: C

226. Schizophrenia is usually diagnosed in:

- a. infancy
- b. childhood
- c. early adulthood
- d. old ageAnswer: C

227. Malingering and Munchausen syndrome are:

- a. somatoform disorders
- b. anxiety disorders
- c. sexual disorders
- d. factitious disordersAnswer: D

228. The prevalence rate of a disorder refers to:

- a. its frequency of occurrence in a population at a given time
- b. its severity within an individual
- c. how much coverage there is of the disorder in the media
- d. how long it typically takes an individual to recover from the disorder Answer: A

229. Which of the following was NOT included in the Canadian Mental Health Survey:

- a. depression

- b. obesity
 - c. drug abuse
 - d. anxiety
- Answer: B

230. DSM stands for:

- a. diagnostic and scientific manual of mental disorders
 - b. diagnostic and statistical manual of major disorders
 - c. diagnostic and scientific manual of major disorders
 - d. diagnostic and statistical manual of mental disorders
- Answer: D

231. Trepanation was used in olden times to help “cure” psychological disorders by:

- a. drilling holes in the skull
 - b. using electric shock to “reset” the brain
 - c. giving people more than one drug at the same time
 - d. explaining that it is normal to be scared
- Answer: A

232. Dissociative identity disorder is sometimes called:

- a. schizophrenia
 - b. dissociative fugue
 - c. multiple personality disorder
 - d. generalized anxiety disorder
- Answer: C

233. Which of the following does the DSM NOT take into account when providing guidance re: a diagnosis?

- a. cultural factors
 - b. medical conditions
 - c. everyday functioning
 - d. the DSM takes ALL of the above into account
- Answer: D

234. GAD is more common in _____, while ADHD is more common in _____.

- a. educated people, uneducated people
 - b. uneducated people, educated people
 - c. females, males
 - d. males, females
- Answer: C

235. Until the 18th century the most common treatment for the mentally ill was to:

- a. lock people up in asylums
 - b. give people experimental drugs
 - c. give people psychoanalysis
 - d. make people do community service
- Answer: A

236. ADHD is usually first diagnosed in:

- a. infancy
 - b. childhood
 - c. adulthood
 - d. old age
- Answer: B

237. Frotteurism is:

- a. a type of schizophrenia
 - b. an eating disorder
 - c. a paraphilia
 - d. a somatoform disorder
- Answer: C

238. Gender identity disorder is a controversial diagnosis because:

- a. it seems to occur only in North America
 - b. only people who have undergone psychoanalysis are ever diagnosed with it
 - c. people who "suffer" from it do not regard their feelings or behaviours as a disorder
 - d. it has a prevalence rate of zero
- Answer: C

239. Which of the following is NOT a characteristic of borderline personality disorder?

- a. mood swings
 - b. hallucinations
 - c. impulsivity
 - d. identity problems
- Answer: B

240. Which category/cluster of personality disorder does borderline personality disorder come under?

- a. dramatic/erratic
 - b. odd/eccentric
 - c. avoidant/dependent
 - d. anxious/inhibited
- Answer: A

141. person suffering from hypoactive sexual desire disorder has:

- a. too little interest in sex
 - b. too much interest in sex
 - c. an obsessive need to expose their genitals in public
 - d. a desire to witness suffering in other people
- Answer: A

242. Acrophobia is to _____ as arachnophobia is to ____.

- a. open spaces, spiders
 - b. spiders, open spaces
 - c. heights, spiders
 - d. spiders, heights
- Answer: C

243. Which of the following has NOT been classified as a sexual disorder?

- a. dyspareunia

- b. vaginismus
- c. premature ejaculation
- d. creatinuria

Answer: D

244. person who worries excessively about having a serious illness is most likely to be diagnosed as suffering from:

- a. borderline personality disorder
- b. conversion disorder
- c. hypochondria
- d. mitochondria

Answer: C

245. In the context of psychological disorders, APD stands for:

- a. anxious personality disorder
- b. arousal paraphilia disorder
- c. antisocial personality disorder
- d. antagonistic performance disorder

Answer: C

246. BPD is more common in ____; APD is more common in _____.

- a. uneducated people, educated people
- b. children, adolescents
- c. extraverts, introverts
- d. women, men

Answer: D

247. Hallucinations are classed as a ____ symptom of schizophrenia.

- a. positive
- b. cognitive
- c. negative
- d. transitive

Answer: A

248. Dysthymia appears to be a milder form of:

- a. bipolar disorder
- b. clinical depression
- c. schizophrenia
- d. Munchausen syndrome

Answer: B

249. To understand anxiety disorders we need to take account of:

- a. only biological factors
- b. only environmental factors
- c. both biological and environmental factors
- d. neither biological nor environmental factors

Answer: C

250. APD is a type of _____ disorder.

- a. internalizing
 - b. mood
 - c. somatoform
 - d. externalizing
- Answer: D

251. The difference between somatoform disorders and factitious disorders is that:

- a. somatoform disorders only happen to men, factitious disorders only happen to women
 - b. somatoform disorders involve cognition, factitious disorders involve emotion
 - c. in somatoform disorders the physical symptoms are real, in factitious disorders the physical symptoms are not real
 - d. somatoform disorders are caused by environmental factors, factitious disorders are caused by genetic factors
- Answer: C

252. Which of the following would be classified as a social-cultural influence in the bio-psycho-social model of illness?

- a. neurotransmitters
 - b. homelessness
 - c. patterns of negative thinking
 - d. genetic makeup of the individual
- Answer: B

253. criticism of the DSM is that it:

- a. hasn't changed since the 1950s
 - b. is not actually used by therapists, insurers etc
 - c. only includes a handful of disorders
 - d. is primarily focused on Western illness
- Answer: D

254. Physically attractive people are usually perceived as:

- a. more intelligent than unattractive people
 - b. more dominant than unattractive people
 - c. more socially skilled than unattractive people
 - d. all of the above
- Answer: D

255. Research has shown a positive correlation between aggression and the level of:

- a. acetylcholine
 - b. testosterone
 - c. estrogen
 - d. GABA
- Answer: B

256. In Milgram's original study on obedience, what percentage of participants were willing to administer the maximum level of shock:

- a. 5%
- b. 30%

- c. 65%
- d. 95%Answer: C

257. People are more likely to help others if:

- a. they are in a bad mood
- b. they feel guilty about something
- c. someone else is already helping
- d. they are in a hurryAnswer: B

258. Punching a wall or kicking a chair when you are angry at a co-worker are examples of:

- a. displaced aggression
- b. inanimate hostility
- c. repression
- d. avoidant attachmentAnswer: A

259. An advertiser who seeks to associate their product with something people already like (for example, a celebrity or a popular song) is making use of:

- a. classical conditioning principles
- b. pseudoscience
- c. operant conditioning principles
- d. sublimationAnswer: A

260. According to Moreland and Beach, the more frequently we see a person the:

- a. less likely we are to recognize them
- b. less likely we are to trust them
- c. more likely we are to dislike them
- d. more likely we are to like themAnswer: D

261. Having an audience typically ___ us if we are doing an easy task and ___ us if we are doing a difficult task.

- a. hinders, hinders
- b. helps, helps
- c. helps, hinders
- d. hinders, helpsAnswer: C

262. Groupthink is most likely when:

- a. there is time pressure
- b. group members feel no sense of group identity
- c. there is a weak leader
- d. group members are in frequent contact with people outside the groupAnswer: A

263. Stimulation of the amygdala is most likely to increase feelings of:

- a. happiness
- b. guilt

- c. shyness
- d. aggression Answer: D

264. Evolutionary theory predicts that we will be most likely to help:

- a. old people
- b. family members
- c. poor people
- d. strangers Answer: B

265. Research has shown that people are LESS willing to administer severe shocks in the Milgram paradigm if:

- a. they choose the level of shock themselves
- b. the person telling them to administer the shock is in another room
- c. they knew that other people had refused to administer severe shocks
- d. all of the above Answer: D

266. In terms of interpersonal attraction, research suggests that:

- a. opposites attract
- b. similarity breeds contempt
- c. birds of a feather flock together
- d. a stitch in time saves nine Answer: C

267. We tend to stereotype people on the basis of their:

- a. physical appearance
- b. age
- c. race
- d. all of the above Answer: D

268. People who are high in self-monitoring are _____ likely to act in ways consistent with their attitudes than people who are low in self-monitoring.

- a. more
- b. less
- c. neither more nor less
- d. more if they are angry, less if they are sad Answer: B

269. To be classed as "intimate", a relationship must be based on:

- a. passion
- b. acceptance
- c. social support
- d. all of the above Answer: D

270. Prejudice is to _____ as discrimination is to _____.

- a. thought, action
- b. race, age

- c. stereotype, categorization
- d. negative, positive Answer: A

271. The tendency to underestimate the role of situational factors when deciding why a stranger behaved in a particular way is known as the:

- a. self-serving bias
- b. fundamental attribution error
- c. situational exploitation bias
- d. causal explanation error Answer: B

272. If you want someone to be attracted to you, research suggests that you should:

- a. ask them about themselves
- b. argue with them
- c. talk only about yourself
- d. all of the above Answer: A

273. The fact that as group size are:

- a. passionate
- b. interdependent
- c. self-serving
- d. all of the above Answer: B

274. Groups that set _____ and increases, group productivity _____ goals are more likely tends to decrease is most likely explained by:

- a. groupthink
- b. stereotyping
- c. social loafing
- d. social facilitation Answer: C

275. According to the "foot in the door" technique, you are more likely to be able to change someone's attitude if you:

- a. visit them in their home
- b. start by complimenting them on their choice of footwear
- c. tell them how many celebrities hold the attitude you want them to adopt
- d. get them to make a small change in attitude to start with Answer: D

276. Jill and John have been married for many years and rely on each other to meet important goals. This reliance reveals that they to be effective than groups that don't set these kind of goals.

- a. easy, vague
- b. vague, unreachable
- c. specific, attainable
- d. difficult, unattainable Answer: C

277. Which of the following best illustrates the concept of minority influence?

- a. a union is successful in negotiating an improved benefits package for its members

- b. three teenagers manage to persuade their school to adopt a new anti-litter policy
 - c. Shari is able to persuade her friend Ivy to give up smoking
 - d. the government passes a law requiring cyclists to wear helmets
- Answer: B

- 278.** According to cognitive dissonance theory, we may be motivated to change our attitudes to:
- a. reduce negative feelings
 - b. conform to the attitudes of high-status individuals
 - c. force others to do the same
 - d. increase our level of anxiety
- Answer: A

- 279.** Another term for the fundamental attribution error is:
- a. commitment
 - b. correspondence bias
 - c. cognitive dissonance
 - d. stereotype threat
- Answer: B

- 280.** We are likely to make a _____ attribution to explain our success, and a ____ attribution to explain our failure.
- a. causal, correlational
 - b. correlational, causal
 - c. person, situation
 - d. situation, person
- Answer: C

- 281.** Benjamin thinks that if he kicks his car and swears at his computer he will release his anger and be less aggressive with his co-workers. Benjamin believes in:
- a. the fundamental attribution error
 - b. social loafing
 - c. social facilitation
 - d. catharsis
- Answer: D

- 282.** One likely explanation for why so many people ignored Kitty Genovese's situation is:
- a. social facilitation
 - b. the social responsibility norm
 - c. diffusion of responsibility
 - d. groupthink
- Answer: C

- 283.** The Implicit Association Test is designed to measure:
- a. verbal ability
 - b. unconscious stereotyping
 - c. hidden mathematical ability
 - d. dream content
- Answer: B

- 284.** Phrenologists tried to find out about personality by:
- a. reading a person's horoscope
 - b. feeling a person's skull

- c. looking at a person's hands
- d. asking people questions Answer: A

285. limitation of selective breeding studies is that they cannot:

- a. tell us anything about the role of genes
- b. be used to study human beings
- c. provide information relevant to the nature/nurture debate
- d. tell us anything about the role of the environment Answer: B

286. Which neo-Freudian challenged his ideas about penis envy?

- a. Adler
- b. Fromm
- c. Jung
- d. Horney Answer: D

287. Someone who feels as though they are not living up to expectations would be described by Adler as having:

- a. low self-realization
- b. an Adlerian complex
- c. an inferiority complex
- d. low actualization Answer: A

288. According to Freud, the mind's three components are:

- a. ego, id, superego
- b. unconscious, moral, immoral
- c. oral, anal, phallic
- d. primary, secondary, tertiary Answer: D

289. The idea that you can assess someone's personality by studying their face is called:

- a. phrenology
- b. physiology
- c. somatology
- d. physiognomy Answer: A

290. The ___ complex is to girls as the _____ complex is to boys.

- a. Electra, Oedipus
- b. Oedipus, Electra
- c. oral, phallic
- d. phallic, oral Answer: C

291. The discovery that the heritability of the Big Five personality traits is around 40%– 50% suggests that:

- a. the environment plays no role in personality
- b. genes play no role in personality
- c. the environment plays an important role in personality

d. the Big Five traits account for about half of our personality Answer: B

292. Humanistic psychologists embraced the idea of:

- a. repression
- b. free will
- c. unconscious drives
- d. the id Answer: B

293. According to Eysenck, extraverts seek to ___ their arousal while introverts seek to ___ their arousal.

- a. decrease, increase
- b. hide, reveal
- c. increase, decrease
- d. reveal, hide Answer: C

294. Allport believed that traits could be organized into three levels:

- a. primary, secondary, tertiary
- b. cognitive, emotional, physiological
- c. id, ego, superego
- d. cardinal, central, secondary Answer: D

295. The MMPI is used to measure:

- a. unconscious drives
- b. the Big Five traits
- c. personality and psychological disorders
- d. leadership potential Answer: C

296. Which of the following is NOT one of the Big Five traits?

- a. sense of humour
- b. openness to experience
- c. conscientiousness
- d. extraversion Answer: A

297. Freud founded the _____ approach to understanding human behaviour.

- a. palliative
- b. psychodynamic
- c. patronymic
- d. psychedelic Answer: B

298. The influence of parents on the personality of their children is:

- a. non-existent
- b. weakest in early childhood
- c. strongest in early childhood
- d. consistent across the lifespan Answer: C

299. What is special about "knockout" mice?

- a. they are very attractive
 - b. their DNA has been modified
 - c. they are easy to knock out
 - d. they are unusually aggressive
- Answer: B

- 300.** The aim of behavioural genetics is to learn about:
- a. the extent to which geneticists can modify people's behaviour
 - b. the possibility of eradicating behavioural problems in children
 - c. the genetic and environmental influences on human behaviour
 - d. the ability of animals to learn language
- Answer: C

- 301.** Monozygotic is to twins as dizygotic is to _____ twins.
- a. male, female,
 - b. female, male
 - c. fraternal, identical
 - d. identical, fraternal
- Answer: D

- 302.** Which of the following characteristics describe someone who, according to Maslow, is self-actualized?
- a. creativity
 - b. confidence
 - c. spontaneity
 - d. all of the above
- Answer: D

- 303.** According to Freud, children pass through 4 stages of psychosexual development. Which of the following shows the stages in the correct developmental order?
- a. oral, anal, phallic, latency
 - b. latency, oral, anal, phallic
 - c. phallic, anal, oral, latency
 - d. oral, phallic, latency, anal
- Answer: A

- 304.** Projective tests claim to reveal information about:
- a. career aptitude
 - b. intellectual attainment
 - c. unconscious processes
 - d. parenting style
- Answer: C

- 305.** Traits are defined as:
- a. physical characteristics that distinguish us from other people
 - b. relatively enduring characteristics that influence our behaviour across many situations
 - c. unconscious tendencies to act in different ways according to the situation
 - d. permanent personality tendencies that determine our behaviour in any situation
- Answer: B

- 306.** Sheldon's theory that people with different body types have different personalities has been:
- a. supported by research
 - b. discredited

- c. shown to be accurate for thin people but not overweight people
 - d. shown to be accurate for women but not for men
- Answer: B

307. Which of the following is not a defence mechanism?

- a. projection
 - b. regression
 - c. ingratiation
 - d. sublimation
- Answer: C

308. Rohan is self-disciplined, focused on achievement and keen to do his duty. He would be expected to score highly on:

- a. neuroticism
 - b. agreeableness
 - c. extraversion
 - d. conscientiousness
- Answer: D

309. The Barnum effect helps to explain people's belief in:

- a. fortune-telling
 - b. astrology
 - c. horoscopes
 - d. all the above
- Answer: D

310. ___ are the basic biological units that transmit characteristics from one generation to the next:

- a. genes
 - b. neurons
 - c. glia
 - d. instincts
- Answer: A

311. Which of the following would NOT be useful to a behavioural geneticist?

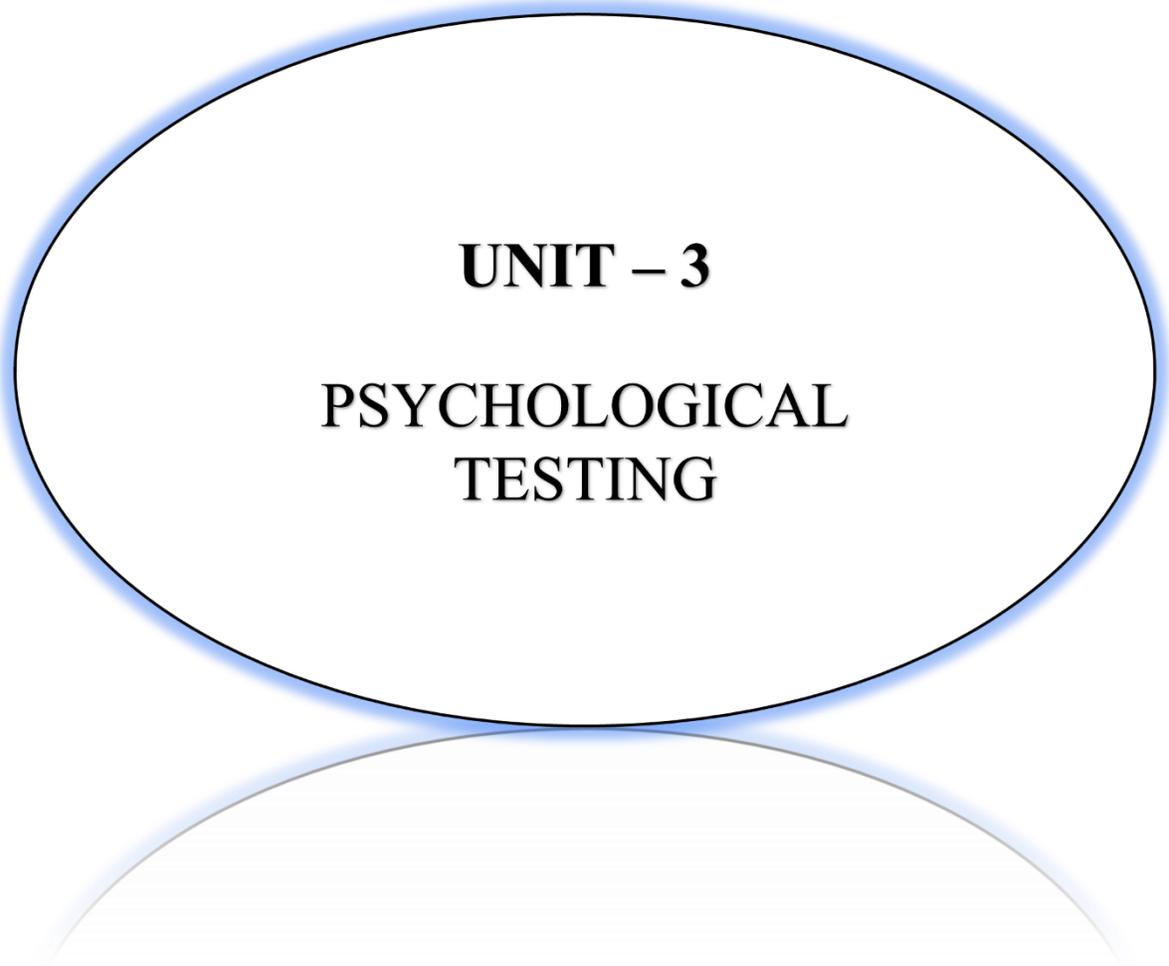
- a. family studies
 - b. case studies
 - c. adoption studies
 - d. twin studies
- Answer: B

312. According to Freud, the id is to the ___ principle as the ego is to the ___ principle.

- a. aggressive, sexual
 - b. sexual, aggressive
 - c. pleasure, reality
 - d. reality, pleasure
- Answer: C

313. Lana is friendly, always willing to help others and compassionate. We would expect Lana to score highly on:

- a. extraversion
 - b. agreeableness
 - c. neuroticism
 - d. openness to experience
- Answer: B



UNIT – 3

**PSYCHOLOGICAL
TESTING**

PSYCHOLOGY

WHAT ARE TYPES OF TEST CONSTRUCTION: ITEM WRITING, ITEM ANALYSIS?

TYPES OF TESTS TEST CONSTRUCTION: ITEM WRITING, ITEM ANALYSIS

Test Psychological testing – also called psychological assessment– is the foundation of how psychologists better understand a person and their behavior. It is a process of problem solving for many professionals – to try and determine the core components of a person’s psychological or mental health problems, personality, IQ, or some other component. It is also a process that helps identify not just weaknesses of a person, but also their strengths.

Psychological testing measures an individual’s performance at a specific point in time – right now. Psychologists talk about a person’s “present functioning” in terms of their test data. Therefore, psychological tests can’t predict future or innate potential.

Psychological testing is not a single test or even a single type of test. It encompasses a whole body of dozens of research-backed tests and procedures of assessing specific aspects of a person’s psychological makeup. Some tests are used to determine IQ, others are used for personality, and still others for something else. Since so many different tests are available, it’s important to note that not all of them share the same research evidence for their use – some tests have a strong evidence base while others do not.

Psychological assessment is something that’s typically done in a formal manner only by a licensed psychologist (the actual testing may sometimes be administered by a psychology intern or trainee studying to become a psychologist). Depending upon what kind of testing is being done; it can last anywhere from 1 1/2 hours to a full day.

Testing is usually done in a psychologist’s office and consists largely of paper-and-pencil tests (nowadays often administered on a computer for ease-of-use).

Psychological testing is divided into four primary types:

- Clinical Interview
- Assessment of Intellectual Functioning (IQ)
- Personality Assessment
- Behavioral Assessment

In addition to these primary types of psychological assessment, other kinds of psychological tests are available for specific areas, such as aptitude or achievement in school, career or work counseling, management skills, and career planning.

Within the field of test development, the tasks and/or questions that are used to construct tests and examinations are referred to as ‘items’, and the range techniques involved in preparing those items are collectively referred to as ‘item writing’. Is item writing an art or science?

The best item development techniques combine elements of both these intellectual activities. On the one hand, there is a fair amount of experimental method, which we might recognize as

scientific, incorporated within the whole set of procedures for developing a good item, or the sets of such things we call 'tests. However, as this document will make clear, writing a good item is also a highly creative act. By the end of the process something new, powerful, and useful has emerged – a test instrument which has used words, symbols or other materials from a curriculum or a syllabus in a new way, often to serve a variety of educational purposes. In doing so, the item developer needs imagination and ingenuity as well as knowledge: form, structure and balance become important, as they are to a sculptor or a musician. Why are these building-blocks of tests called 'items', anyway? Is it merely educational jargon? Why not call them 'questions'?

The choice of the word 'item', in preference to 'question', draws attention to two matters. One is that items are often not in question format – the test-taker is required to perform a specific task, or reveal specific knowledge, which is implied in the words given on the test paper, rather than explicitly offered as a direct question.

The other matter concerns the independence of items in a test. Like the items on a shopping list, they are discrete, or they should be. If you can't get one right, that should not stop you from having a fair chance of obtaining success on all the others. The term 'item writing', used in the title of this document, draws attention to this essential independence – the separate skills, abilities or pieces of knowledge which make up human learning are considered individually in the test. This is the prime focus.

However, the discussion (and the test development process) begins and ends with consideration of a second focus. It considers what happens when these items achieve additional significance or importance by having been grouped or combined with other items to form a test instrument. We must continually remember that our building blocks are part of a larger whole. Several times in the paragraphs above, the word 'development' has been used. This is not mere jargon either.

It draws attention to the fact that items do not spring to life ready-made in an item writer's brain. A thorough developmental process often in a defined and specialized sequence, occurs. Like the student knowledge to be tested, it occurs gradually – sometimes with false starts, and often with much wastage on the way, as the test writers clarify their initial ideas, add to them, try them out, and finally decide what will serve their purposes best. Note also the use of the plural 'writers. Item writing is best done using a team approach at various stages of the exercise.

learning difficulties, and so on. However, the real objectives for any test come directly from considering two things in conjunction. The first is the actual educational context in which the results of the testing will be used. The second is the knowledge and understanding the test-taker will be expected (or able) to bring into the test-room.

The objectives which are determined will therefore be local and specific, and determining what they are is the starting point for determining what the test and its items ought to look like. Much of the material in this paper concerns one particular branch of item writing which is perhaps the most difficult to master – the development of multiple-choice items and tests. However this emphasis should not obscure the fact that all items, from simple short-answer formats to extended response essays, need the same careful and methodical processes during their development if the final tests are to be reliable and valid measures of learning outcomes.

The suggestions made as to process can (and should) be applied whether the user is a teacher in a school preparing a semester test or an administrator setting up a large national assessment program.

One more element remains to be added to the matrix used in this example – the formats which have been chosen for the test item themselves. In the UNESCO study being used as an example in this section, only a small space of time was available for each of the cells of the matrix. Hence the solution to the format problem could not involve vast amounts of reading or writing by the test takers, or large numbers of computational exercises to test their basic numeracy. For policy reasons, equal amounts of time had to be given to testing in English and testing in the student's vernacular language, and this suggested selection of formats which were similarly parallel.

The time allocations were suggestive. Thirteen minutes for computations suggested 25 exercises at about two a minute. Eight minutes for reading comprehension suggested 8 short-answer questions (one a minute), and the free writing exercise suggested a sentence every two minutes.

So long as the test-takers were given a few minutes to read through the paper before the test actually began, the stimulus material for the reading and writing exercises could be fully informative but not particularly extensive. More reading comprehension questions could perhaps have been asked if a multiple-choice format had been chosen, but this format was decided against – additional information about a student's writing skills would be elicited if they prepared their own sentences as responses to the comprehension questions.

PROBLEMS FOR SOLUTION

The problems which test-writers set for solution by candidates actually represent a sub-category of constructed responses but seem important and common enough to be discussed separately. In a sense, setting an essay task for extended response has a problem element built into it, especially if the candidate is required to read a large amount of informative stimulus and choose some sort of personal response to be developed during the test. For example, we might look again at an example (given earlier under the heading 'Extended Responses') with this in mind: Read the material presented opposite and prepare a balanced and detailed critical response to the ideas about education presented by the various writers and cartoonists.

Your piece of writing should be between 600 and 1000 words. Other problems may not require words as a response, but quantitative reasoning and expressions for their solution. Or perhaps it is manipulation of materials that is required, as in a test conducted in a laboratory or workshop or art studio.

Mathematical problems are probably the most common kind, from simple primary examples to more complex ones at higher levels of schooling. As in the first example, they too might involve manipulation of objects as an aid to their solution.

ITEM ANALYSIS

There is not room in a paper of this size to canvass and describe all the different options which exist for the analysis of item data. Papers for other modules will explore the matter in some detail. School-based tests will use simple rather than complex strategies to obtain (and indices to express) this information.

Larger test programs will probably have the resources to engage in quite lengthy and complex processing. Broadly speaking, for multiple-choice items in large programs, the analysis consists of statistics which show the facility of each item:

the percentage of the whole test-taking population which got it right

- the discrimination index of each item: how well the keyed answer distinguishes between students of high ability and those less able;
- the response level for each item: how many actually attempted it, right or wrong;
- the criterion score on each item: the mean score of all those who did attempt it;
- whether any distractors did not function well: attracted too few candidates, or a preponderance of those of high ability

However, from the item-editor's point of view, it should be noted that at least five other things are under analysis during this vital stage of the whole development process. Information is obtained about:

1. the parts of an item, especially in multiple-choice format with its stems, keyed answers and distractors;
2. the integrity or worthwhileness of the item as a whole;
3. the performance of the item as a discrete test element;
4. the performance of an item with regard to other items in the same set or test;
5. the integrity or worthwhileness of the test as a whole.

The distinctions between 2, 3, and 4 (which seem on the surface to be saying much the same thing) are important, especially for a multiple-choice test. Each, for the item editor, might offer a slightly different reason for rejecting or retaining an item in the final test. An item might be worthwhile as a measure of a particular higher order skill

(2) It might operate well as a discrete test element, discriminating satisfactorily between the most able and the less able (3). But it might be simply far too hard by comparison with all the other items in the test (4) and deserve exclusion on that ground.

STAGE TWO – EDITING FOR PUBLICATION

When the test has been taken into the field and tried out, and the item analysis has been completed, a second stage of editing then occurs. Using the analysis results, each item is scrutinized and decisions made about rejection or retention.

There may be a little judicious re-writing, but this should be limited to minor changes to distractors only. If the stem and keyed answer need change, then a new item has resulted, and this would require further trial testing: it would be better to reject the item and use one that did work. Once every item is clean, making up the final form actually begins.

As in so many matters to do with test development, there is a sequence of activity which should be followed, in order to ensure that new bugs don't appear and the test as completely as possible meets the original specification. Figure 16 suggests an appropriate sequence.

EDITING FOR PUBLICATION – A CHECKLIST OF ACTIVITIES

1. Read the item analysis and sort the items (or groups of items) into three piles:

- a) ready to go;
- b) needing editing;
- possible rejects

2. Edit items and establish a final pool of items for the test. Check the omit rate to establish optimum test length.

3. Check the specification against this pool for the number and qualities of the items available. Reinstate any usable 'rejects' if all the objectives are not satisfactorily covered.

4. Assign the items to a tentative order for the whole test and enter the scoring scheme at the end of each section of the test.

5. Check this order for: a) order of difficulty (for example, in a set of multiple-choice items, make sure some easy ones occur early, to give the candidate some confidence);

b) keyed answer order and distribution;

c) balance and variety of item type.

6. Write or insert appropriate instructions for candidates. Include suggestions for time to be spent on each section.

7. Assign the items to a preliminary paging of the test-paper: some may have to be moved to allow a more satisfactory layout. Allow sufficient space for answering if there is to be no separate answer sheet.

WHAT IS NORMING, RELIABILITY AND VALIDITY OF PSYCHOMETRIC TESTS?

Norming, Reliability and Validity of Psychometric Test

Evaluation of human qualities – such as attitude, competency, proficiency, accomplishment, and belief, among other constructs- is routinely conducted by administering tests fairly, which are precisely formulated and applied using standardized protocols. Test takers are usually concerned with the results from a test administered to them; they don't have a proclivity to look into the technical aspects or characteristics of the tool itself. Despite this, many people take the tests internal components into account because they realize that the relevance and usefulness of test result interpretation are dependent on its core features. In technical terms, these internal test attributes are termed as psychometric properties.

The psychometric properties of a test are associated with the data that has been garnered from the assessment to find out how well it evaluates the interest construct. The development of a valid test is conditional on the fact that it has been subjected to statistical analyses, which ascertains that it has adequate psychometric properties.

A good psychometric test must have three fundamental properties- reliability, validity, and norming. Be it hiring or developing employees, choosing the correct set of assessments is pivotal in making or breaking a business.

Besides the reliability and validity of tests, the standardization of the assessments normed for various aspects, such as age, gender, education, profession, employability, etc. also determines the properties of tests.

Psychometric properties, usually, provide insights into a test's meaningfulness, appropriateness, and usefulness (or rather say, its validity). Let's say a test is publicized as a measure important for diagnosing a mental disorder such as bipolar disorder. The psychometric properties of a test present the test creators and users with satisfactory evidence of whether the tool performs as portrayed.

The psychometric property of a test focuses on its feature. Some psychometric properties speak volumes about the quality of the whole test, while others give weight to its constituent parts, sections, and even individual items. For instance, when considered in totality, a psychometric property could reveal whether the test assesses a single construct or multiple constructs.

The characteristic of a test analyzing only one dimension or multiple dimensions is the psychometric property of the whole instrument. Another psychometric property of the test could point out whether the instrument evaluates the target construct reasonably well for both men and women. We can call this a psychometric property of gender equality. Yet other psychometric properties furnish evidence whether a test assesses a construct consistently (reliability).

Psychometric properties are most often expressed quantitatively. Numerical quantities such as a coefficient or an index are used to represent the property. For example, the reliability coefficient is a numerical value that most students and professionals are familiar with. Even though reliability is mentioned as the psychometric feature for a test, it is expressible in the form of quantitative value.

Likewise, many other psychometric properties are expressed numerically. Meanwhile, a quantifiable value is not often the best way to convey a specific psychometric property. For example, validity, being a hard fact, cannot be suggestively reduced to a single value or index. It is an encompassing psychometric property, but an exhaustive discussion that synthesizes a substantial body of evidence is required to explain test validity. One must explore and learn about the psychometric properties of tests for two key reasons. First, this knowledge enables makers to create useful tests. Psychometricians and other experts who create tests must analyze and describe the functionality of tests to build them to a predefined level of quality.

Second, the awareness about the psychometric properties of a test ensures that the information gained using the instrument could provide a firm foundation for making the right decisions. It stands to reason those counselors, psychologists, policy personnel, educators, and many other professionals often formulate their decisions on the data collected from the tests.

PSYCHOMETRIC PROPERTIES: RELIABILITY, VALIDITY, AND NORMING

In definition, a standardized test is administered and scored in a consistent or "standard" manner. They are designed in a way that stabilizes questions, conditions for administering, scoring procedures, and interpretations as consistent.

Standardized testing could be composed of true-false, multiple-choice, authentic assessments, or essays. It's possible to shape any form of assessment into standardized tests. When it comes to the creation of psychometric evaluations, questions are measured in scales. And these too are often most valid with standardization post-creation.

We should look for these three factors when creating/standardizing psychometric tests:

- Nature of Reliability
- Understanding Validity
- Importance of Norms

NATURE OF RELIABILITY IN PSYCHOMETRIC TESTS

Psychometric Test Reliability refers to the level to which test scores are accurate and free of measurement mistakes. In other words, does the test measure what it is supposed to measure? It is the consistency in the measurement tool to produce scores by which interpolations can be made.

For instance, a test measuring intelligence should yield the same score for the same person after he or she has completed the test each time within a short period in between (provided the test taker has not changed regarding his/her intelligence over the period).

A test is reliable as long as it produces similar results over time, repeated administration, or under similar circumstances.

If you were to use a professional dart player as an example, his or her ability to hit the designated target consistently, but not the bullseyes under specified conditions, would classify them as an excellent and reliable dart player. However, this does fail on account of validity. When compared to psychometric assessments, a reliable test is better known for its ability to produce stable results over time.

Over the years, scholars and researchers uncovered multiple ways to check for reliability. Some include testing the same participants at different points of time or presenting the participants with varying versions of the same test to see how consistent the results are. Suffice it to say that an assessment has to show demonstrably excellent reliability to qualify for validity.

TYPES OF PSYCHOMETRIC TEST RELIABILITY

Parallel Forms Reliability

In this type, the two tests that are different use the same content but separate procedures or equipment, and yield results that are the same for each test taker.

- **INTERNAL CONSISTENCY RELIABILITY:**

Items within the test are examined to see if they appear to measure what the test measures. Internal reliability between test items is referred to as internal consistency.

- **INTER-RATER RELIABILITY:**

When two raters score the psychometric test in the same way, inter-scorer consistency is high.

- **TEST-RETEST RELIABILITY:**

This is when the same test is conducted over time, and the test taker displays consistency in scores over multiple administrations of the same test.

FACTORS INFLUENCING PSYCHOMETRIC TEST RELIABILITY

There are always minor discrepancies in psychometric test reliability. Moreover, individuals taking the same psychometric test may have different thoughts, feelings, or ideas at various points in the time, leading to variance in scores. A lot of factors (both stable traits and momentary issues) can result in variation in test scores.

Stable traits include weight, height, and other such characteristics. Momentary inconsistency is attributed to different things such as the health of test-takers, an understanding of a particular test item, and so forth.

Why Psychometric Test Reliability Counts

Reliability is essential for psychometric tests. After all, what is the point of having the same test yield different results each time, especially if scores can affect employee selection, retention, and promotion?

ERRORS IN RELIABILITY

Psychometricians identify two different categories of errors:

- **Systematic errors:** These are factors that impact test construction and are inbuilt in the test.
- **Unsystematic errors:** These are errors resulting from random factors such as how the test is given or taken.

Numerous factors influence test reliability. The timing between two test sessions affects test-retest and alternate/parallel forms reliability. The similarity of content and expectations of subjects regarding different elements of testing affects only the latter type of reliability along with split half and internal consistency.

Changes in subjects over time, such as their environment, physical state, emotional and mental well-being, also need to be considered while assessing the reliability of psychometric tests. Test-based factors such as inadequate testing instructions, biased scoring lacking in objectivity, and guessing on the part of the test-taker also influence the reliability of tests. Tests can generate reliable estimates sometimes and not so stable results other times (Geisinger, 2013).

So, just how reliable is your test? Well, it all depends on these factors:

Construction of Items/ Question

Test designers construct questions on the psychometric test to assess mental quality (for example, motivation). The test questions difficulty level or the confusion they create through ambiguity can negatively influence reliability. Biases in interpreting the items as well as errors in question construction can only be corrected if test instructions are properly implemented, and the redesign and research process is active and ongoing.

- **ADMINISTRATION**

Administration of the test is another area where systemic errors can creep in. Instructions accompanying the analysis should be clear cut and well defined. Errors in the guidance provided to

test takers or administrators can have multiple adverse effects on the reliability of the test. Guidelines that affect accurate interpretation could lower test reliability.

- **SCORING**

Reliability also means that the test has a particular scoring system, by which interpretation of results is possible. All tests comprise instructions on scoring. Errors such as conclusions without basis or substantial proof can lower the reliability of the test. Test construction is associated with research to provide evidence for the conclusions drawn. If there is a systematic error in the test design phase, this can impact reliability too.

- **ENVIRONMENTAL FACTORS**

Excessive extremes in temperature or distractions of an audio-visual nature can influence test scores regarding reliability. Errors made in administering the psychometric test can also impact the reliability of scores obtained. Human error is possible too, an interpretation or scoring can be influenced by the examiner's attitude towards the test taker.

- **TEST-TAKER**

The person being examined may suffer from social desirability concerns and give answers that are not reflective of actual choices. Other factors that influence test takers include anxiety, bias, physical factors like illness, or lack of sleep.

OVERCOME PSYCHOMETRIC TEST RELIABILITY ISSUES?

- **Test Length:**

Increasing test length can be a way to improve reliability. The longer the test, the more reliable it is considered.

- **SPEED TEST:**

Speed versus power in psychometric testing is an age-old debate. Speed tests are designed to ensure all students cannot complete the items. Power tests provide items of average difficulty and ensure that students have ample opportunity to complete the psychometric test. Test takers can be evaluated with reliability if a test has items that can be completed. Speed tests cannot be measured using internal consistency, parallel form, or test-retest method.

- **GROUP HOMOGENEITY:**

This is another factor whereby the more heterogeneous the scores of the test, the more reliable its measures will be.

Item Difficulty When there is low variability among test scores, reliability decreases. If the test is so easy that every test taker can easily complete it, how will it serve as a measure of individual differences?

UNDERSTANDING VALIDITY IN PSYCHOMETRIC TESTS

Validity is qualitatively defined as the test's efficacy to measure what it claims to measure. Suffice

to say, a test with high validity ensures the test items (questions) remain closely linked with the test's intended focus.

It is understandable to expect a test used in organizations to shed light on how a candidate would perform in a particular job. With this in mind, it is essential to reiterate the difference between reliability and validity, with the former being a prerequisite to the latter.

Let's consider the same dart player. In repeated trials, he or she continues to miss the mark consistently by about two inches. Of course, this implies a reliable aim. Each shot hits the board in a region two inches from the target. It's difficult to not question his validity as a professional – considering he or she doesn't hit the bull's eye as is the aim of all professional dart players – in comparison to his or her peers.

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THERE ARE TESTS FOR VALIDITY

IMPORTANCE OF NORMING IN PSYCHOMETRIC TESTS

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There are tests for validate

Even with a test that is both reliable and valid, there exists a question about results. An assessment fails without quantifiable results, but as often stated – human beings are far from measurable.

Validity is subjectively defined as the test's capacity to measure what it claims to measure. It's imperative to say that a psychometric test with high validity guarantees the items remain firmly connected with the test's intended core interest.

IMPORTANCE OF NORMING IN PSYCHOMETRIC TESTS

Psychometric tests are often normed against groups for comparison. It also avoids looking at individual items or questions and instead observes the total score of an individual as compared to a representative sample for the same.

A representative sample means using a group of children when developing a test for children and an adult group when developing a test for adults. Also, based on the population, samples are generally made representative based on demographic factors like age, gender, education, religion, etc.

This is primarily a standard practice because a psychometric test score of say 30 correct out of 40 is meaningless unless compared to the performance of others at a similar level on the same test. The practice of using relative scores becomes all the more important when interpreting ability test results.

When you get the 94th percentile on a trait like extraversion, you know that you are simply more extraverted than 94% of the sample group from whom the test makers derived the normal distribution. On the other hand, if you scored 94% on a math test, it implies that you marked about

94 in every 100 questions correctly

It's important to note, however, that every test has its appropriate norm group. Data is better developed when the psychometrics is within the context of the role also. For example, if the role possessed numerical work but without the time pressure in real-world scenarios, someone with below average results on numerical reasoning tests may be given the benefit of the doubt.

Where possible, it also makes sense to take the candidate's response style in interpreting percentile scores. It has something to do with both speed and accuracy, meaning some people may prefer a slower approach through ability tests – which are a part of psychometrics – with emphasis on precision. Others may cover ground on several items with lowered accuracy.

Psychological constructs such as personality have no right or wrong answers associated with them, and can thereby not be marked using percentages. Therefore academics and researchers alike resort to norming, among other methods, to make sense of scores on personality assessments.

With growing concerns over costs, conveniences, and other logistical challenges, technology-enabled assessments have become popular over time as well. Simply because they serve to streamline the process, reduce costs, increase efficiencies, allow employers to assess, and analyze more data points than previously deemed possible.

Know-how about the creation or standardization of psychometric tests aside, it's also imperative to understand how best one can determine the quality of a psychometric test

WHAT IS AREAS OF TESTING: INTELLIGENCE, CREATIVITY, NEURO PSYCHOLOGICAL TESTS, APTITUDE, PERSONALITY ASSESSMENT, INTEREST INVENTORIES ?

AREAS OF TESTING: INTELLIGENCE, CREATIVITY, NEUROPSYCHOLOGICAL TESTS, APTITUDE, PERSONALITY ASSESSMENT, INTEREST INVENTORIES

Intelligence test Psychology

Intelligence test, series of tasks designed to measure the capacity to make abstractions, to learn, and to deal with novel situations.

The most widely used intelligence tests include the Stanford-Binet Intelligence Scale and the Wechsler scales. The Stanford-Binet is the American adaptation of the original French Binet-Simon intelligence test; it was first introduced in 1916 by Lewis Terman, a psychologist at Stanford University. The individually administered test—revised in 1937, 1960, 1973, 1986, and 2003—evaluates persons two years of age and older and is designed for use primarily with children. It consists of an age-graded series of problems whose solution involves arithmetical, memory, and vocabulary skills.

The test is scored in terms of intelligence quotient, or IQ, a concept first suggested by German psychologist William Stern and adopted by Lewis Terman in the Stanford-Binet Scale. The IQ was originally computed as the ratio of a person's mental age to his chronological (physical) age, multiplied by 100. Thus, if a child of 10 had a mental age of 12 (that is, performed on the test at the level of an average 12-year-old), then the child was assigned an IQ of $(12/10) \times 100$, or 120.

A score of 100, for which the mental age equaled the chronological age, was average; scores above 100 were above average, scores below 100 were below average. The concept of mental age has fallen into disrepute, however, and few tests now involve the computation of mental ages.

Yet many tests still yield an IQ; this figure is now computed on the basis of the statistical percentage of people who are expected to have a certain IQ. Intelligence test scores follow an approximately "normal" distribution, with most people scoring near the middle of the distribution curve and scores dropping off fairly rapidly in frequency away from the curve's centre.

For example, on the IQ scale about 2 out of 3 scores fall between 85 and 115 and about 19 out of 20 scores fall between 70 and 130. A score of about 130 or above is considered gifted, while a score below about 70 is considered mentally deficient or intellectually disabled.

Intelligence tests have provoked a great deal of controversy about what kinds of mental abilities constitute intelligence and whether the IQ adequately represents these abilities, with debate centring on cultural bias in test construction and standardization procedures. Critics have charged that intelligence tests favour groups from more affluent backgrounds and discriminate against less privileged racial, ethnic, or social groups. Consequently, psychologists have attempted to develop culture-free tests that would more accurately reflect an individual's native ability.

One such test, the Johns Hopkins Perceptual Test, developed by Leon Rosenberg in the early 1960s to measure the intelligence of preschool children, has a child try to match random form (ordinary geometric forms, such as circles, squares, and triangles, are avoided because some children may be more familiar with the forms than are others).

Another attempted solution to the problem was to use test material pertinent to a child's living environment; for example, for inner-city children, urban and not pastoral scenes are appropriate.

CREATIVITY TESTS

Tests designed to measure creativity in children or adults.

Creativity tests, mostly devised during the past 30 years, are aimed at assessing the qualities and abilities that constitute **creativity**. These tests evaluate mental abilities in ways that are different from—and even diametrically opposed to—conventional **intelligence** tests. Because the kinds of abilities measured by creativity tests differ from those measured by **intelligence quotient (IQ)** tests, persons with the highest scores on creativity tests do not necessarily have the highest IQs. Creative people tend to have IQs that are at least average if not above average, but beyond a score of 120 there is little correlation between performance on intelligence and creativity tests.

Most creativity tests in use today are based at least partially on the theory of creativity evolved by J.P. Guilford in the 1950s. Guilford posited that the **ability** to envision multiple solutions to a problem lay at the core of creativity.

He called this process **divergent thinking** and its opposite—the tendency to narrow all options to a single solution—**convergent thinking**. Guilford identified three components of divergent thinking: fluency (the ability to quickly find multiple solutions to a problem); flexibility (being able to simultaneously consider a variety of alternatives); and originality (referring to ideas that differ from those of other people). Early tests designed to assess an individual's aptitude for divergent

thinking included the Torrance (1962) and Meeker (1969) tests.

The most extensive work on divergent thinking was done under Guilford's direction at the University of Southern California by the Aptitudes Research Project (ARP), whose findings between the 1950s and 1970s produced a broad structure-of-intellect (SI) model which encompassed all intellectual functions, including divergent thinking. A number of the ARP divergent thinking tests, which were originally devised as research instruments for the study of creativity, have been adapted by a variety of testing companies for use by educators in placing gifted students and evaluating gifted and talented programs. The ARP tests are divided into verbal and figural categories. Those that measure verbal ability include:

- Word fluency : writing words containing a given letter
- Ideational fluency: naming things that belong to a given class(i.e., fluids that will burn)
- Associational fluency: writing synonyms for a specified word
- Expressional fluency: writing four-word sentences in which each word begins with a specified letter
- Alternate uses: listing as many uses as possible for a given object
- Plot titles: writing titles for short-story plot
- Consequences: listing consequences for a hypothetical event ("What if no one needed to sleep?")
- Possible jobs: list all jobs that might be symbolized by a given emblem.
- The figural ARP tests, which measure spatial aptitude, include the following:
 - Making objects: drawing specified objects using only a given set of shapes, such as a circle, square, etc.
 - Sketches: elaborating on a given figure to produce sketches of recognizable items
 - Match problems: removing a specified number of matchsticks from a diagram to produce a specified number of geometric shapes
 - Decorations: using as many different designs as possible to outline drawings of common objects.
- Divergent thinking tests are generally evaluated based on the number and variety of answers provided; the originality of the answers; and the amount of detail they contain (a characteristic referred to as elaboration). A number of creativity tests currently in use include sections that measure divergent thinking.

Rather than ways of thinking, some creativity tests evaluate attitudes, behavior, creative **perception**, or creative activity. Some creativity tests specifically address the problem of assessing creativity in minority populations, who are at a disadvantage in tests that place a strong emphasis on verbal and semantic ability. The Eby Gifted Behavior Index reflects the growing view of creativity as specific to different domains. It is divided into six talent fields

verbal, social/leadership, visual/spatial, math/science problem- solving, mechanical/technical, and musical. The Watson-Glaser Critical Thinking Appraisal is a more analytical assessment of **giftedness** based on five components of critical thinking: inference, deduction, interpretation, awareness of assumptions, and evaluation of arguments.

Creativity tests have been found reliable in the sense that one person's scores tend to remain similar across a variety of tests. However, their validity has been questioned in terms of their ability to predict the true creative potential of those who take them. In one study, there was little

correlation between the scores of both elementary and secondary students on divergent thinking tests and their actual achievements in high school in such creative fields as art, drama, and science.

Creativity tests have also been criticized for unclear instructions, lack of suitability for different populations, and excessive narrowness in terms of what they measure. In addition, it may be impossible for any test to measure certain personal **traits** that are necessary for success in creative endeavors, such as initiative, self-confidence, tolerance of ambiguity, **motivation**, and perseverance. Tests also tend to create an anxiety-producing situation that may distort the scores of some test takers.

USEFUL CREATIVITY TESTS TO KNOW IF YOU ARE CREATIVE

I find creativity tests a fascinating subject to study. Whether you use creativity in your hobby or at work, I think it is a characteristic worth nurturing. A friend of mine once asked “how do you rate or measure a creative corporate culture?”. I told him there are two ways. The first is to set key performance indicators on the innovations or the ideas your company develop (I’m talking about qualitative ideas within the company or for your stakeholders). The second way is to share creativity tests to the people you are working with.

Many people believe that creativity is subjective and is uniquely innate to us. What we do not know is that several researches have been conducted to document the measurement of creativity. These creativity tests have been used by several researchers, educators and psychologists to gauge a person’s creative quotient (CQ) and determine which aspect of our creativity needs more nurturing. I think it can be useful for an organisation to have a clear view of his creative corporate culture landscape.

1 – GUILFORD’S TEST OF DIVERGENT THINKING – ALTERNATIVE USES TASK

This test is used to measure how respondents are able to come up with alternative uses for a certain product (a chair, paperclip, cup etc.) based on four factors: originality, fluency, flexibility and elaboration. It aims to derive multiple answers to the question and categorize the answers into:

- Originality – the novelty of the alternative use
 - Fluency – the number of uses the respondent was able to come up with
 - Flexibility – the categories with which the alternative uses fall into
 - Elaboration – the amount of detail the respondent provided with regards to the alternative use of the item.
- Remote Associate

This is one of the creativity tests that fall into convergent thinking – that is finding the “one-right” answer to the problem. This test gives the respondents three words which are in one way or the other related. The respondents’ task is to find what links or associates these words together.

Example: What links: Elephant–Lapse–Vivid Answer: check at the end of this article

2 – TORRANCE TEST OF CREATIVE THINKING – INCOMPLETE FIGURES

Ellis Paul Torrance was one of the forerunners of the creativity tests we use until today. One of the most notable tests he ever came up with was the Incomplete Figures. This test is favoured by many

because it is easy to administer and can be finished in a short period of time. The test begins with giving the respondents and incomplete figure which they must draw and build an object upon.

Possible solutions at the end of this document.

For those that don't trust creativity tests here is an interesting article of the Creativity Research Journal Can We Trust Creativity Tests? A Review of the Torrance Tests of Creative Thinking (TTCT)

ARTISTIC-ASSESSMENT TESTS

These creativity tests are administered in special domains or areas. It is the equivalent of Pulitzer Prize for the best well-written work or the Nobel Prize for an outstanding individual in a specific field. Artistic assessment tests are often used to measure the creativity of an artwork, dance, design and similar fields.

5 – Self-Assessment Test

Self-assessment tests allow respondents to assess their creative intelligence by answering questions. The questions usually ask how they feel about a certain situation and whether you have that certain creative trait. Several self-assessment tests have been developed over the years, two of which was created by one of Torrance's colleague, Joe Khatena. The test is called the Khatena-Torrance Creative Perception Inventory which contains two sub-categories:

1. Something About Myself (SAM)- gauging the respondents artistic abilities, self-strength and individuality.
2. What Kind of Person Are You? (WKOPAY)- measures imagination, self-confidence and inquisitiveness.
- 3.

There are still so many creativity tests available today, several of them are built upon the principles created by Torrance, Guilford and other forerunners. I think the ongoing interest in measuring creativity is a wonderful development, considering that several factors in this day and age influence one's creative skills.

NEUROPSYCHOLOGICAL TESTS

If you're having trouble concentrating or making decisions, some simple tests might be helpful in figuring out what's wrong. They're called neuropsychological tests.

Neuropsychology looks at how the health of your brain affects your thinking skills and behavior.

These tests are usually done with a pencil and paper in a doctor's office. They may also be done on a computer. Or, a neuropsychologist may just ask you a series of questions that you answer orally

These tests help your doctors look at your attention span and how well you concentrate on things. Other areas covered by neuropsychological testing include:

- Your ability to think, understand, learn, and remember (cognition)
- Memory
- Motor function (walking, coordination, etc.)

- Perception (how well you take in what you see or read)
- Problem-solving and decision-making
- Verbal ability

You may be given different types of test, including:

Memory test: Repeat a list of words, sentences, or numbers.

Cognition test: Explain how two items are like. For instance, if you see a picture of a dog and a cat, you might answer that they're both animals or that they are both pets.

Verbal communication test: Name some items as the person giving the test points at them. You might also be given a letter of the alphabet and told to list words that start with that letter.

Motor tests: These might include tasks such as inserting pegs into a pegboard using one hand and then the other.

You might also be given tests to see how your hearing and vision affect your thinking and memory.

Neuropsychological Test Use

You usually take a neurological test when you have a noticeable change in your thinking or memory. They help doctors figure out whether your problems are caused by any of the following:

- Disease, such as Alzheimer's
- Brain injury
- Emotional disorders, such as depression or anxiety
- Normal brain changes related to getting older

It is especially important for doctors to find out about thinking problems in cases where the patient has a movement disorder, such as Parkinson's disease. This is a condition that affects the brain cells that control movement and coordination.

People with Parkinson's eventually can have trouble with their memory or with communication. If you have Parkinson's, you might get a neuropsychological test soon after diagnosis. Results from future tests can then be compared with that first test to see if the disease is changing your thinking skills.

NEUROPSYCHOLOGICAL TEST PREPARATION

No matter what type of neurological test you take, you won't need to study for it. There are a few things you should do before the test, however:

- Get a good night's sleep, since being tired affects how you think.
- Eat a good breakfast.
 - Don't drink anything with alcohol in it the night before the test
- Ask your doctor about whether you can take any medications, including sleep medicine, the night before.
- Tell the psychologist about any previous psychological tests you've taken.

- Relax and don't worry about the results.

You or a loved one should bring a list of all your medications. If you have trouble answering questions about your medical history or symptoms, bring someone along who can.

NEUROPSYCHOLOGICAL TEST PROCEDURE

Part of the testing will include a review of your medical history. If you've had a stroke, for instance, you may have a harder time thinking or talking. It will help the neuropsychologist to better understand your challenges if they know that you've had a stroke. Your neuropsychologist will also interview you or someone close to you to learn more about your symptoms. They will then decide what tests will be given.

A technician who works with the neuropsychologist will typically give you the tests. This person is usually a "psychometrist," a person who is trained to give and score these tests. Or the person may be a student working on a doctoral degree in psychology.

HOW LONG WILL THE TEST TAKE?

The testing may take 3 to 6 hours. It depends on how at ease you are and how quickly you and the technician can go through all the questions. You'll get breaks during the session. In some cases, you might need to make more than one visit.

Neuropsychological Test Results and Follow U

Once the tests are done, the neuropsychologist will go over the results and write a report. It will include a diagnosis and suggestions for treatment, if any is needed.

The treatment plan could include more medical tests, such as a CT or MRI scan of your brain. This is helpful in looking for tumors or other diseases.

Treatment might also include counseling if the diagnosis is depression. Medications to help manage symptoms may also be recommended.

Whatever the results are, they will become part of your permanent medical history. They will be helpful in understanding your current health picture and your future medical needs, too.

If you're ever told you should undergo neuropsychological testing, understand that the tests are meant to get a picture of your brain health at this moment. Your thinking skills may get worse, or they may improve.

When you and your doctor get more information about your brain now, you'll both be able to make smarter decisions about your mental and physical health later.

SPECIFIC AREAS OF APTITUDE TEST MECHANICAL APTITUDE TEST:

This test is designed to measure fundamental aptitudes of tool usage, press visualization and sub arithmetic in the area of mechanical ability. Mechanical aptitude is a combination of various factors. It is very difficult to give any clear-cut list of the various traits comprising mechanical ability.

CLERICAL APTITUDE TEST:

General intelligence, speed, appropriateness of vocabulary, accuracy in checking and measure business arithmetic is required in clerical services. Abilities in regard to official language usage, spelling, vocabulary, hand writing etc. are tested in clerical aptitude tests. Clerical aptitude like the mechanical aptitude is a combination of several traits. Super thinks that, "In routine clerical work one would expect speed and accuracy in checking numerical and verbal symbols to be a characteristic of the successful worker.

There is some justification for referring to this ability as clerical aptitude." According to Bigham "Clerical work is based on perceptual ability, intellectual ability, command over the basic educational skills and motor ability. Bill is of the opinion that clerical duties, "include the gathering, classification and presentation of data of all sorts and the analysis and use of these data in planning, executing and determining the results of operation."

A. PERCEPTUAL:

"The ability to observe words and numbers to see instantly and correctly what is on the paper."

B. INTELLECTUAL:

"Ability to grasp the meaning of words and symbols."

CLERICAL APTITUDE CAN BE MEASURED THROUGH THE FOLLOWING WAYS:

Grade in academic Subjects

Here subjects usually considered for this purpose are English, type writing, book keeping etc.

1. SOCIAL ABILITY:

The social ability of a person can be measured through his participation in curricular activities.

2. APTITUDE TEST:

Standardized tests have also been found to be useful in indicating success in clerical jobs. It has been found that factors like general intelligence, speed and accuracy in checking and measuring business arithmetic determine the suitability of an individual for a clerical job. Abilities with regard to English and Hindi usage, spelling, vocabulary, hand writing, etc. are also important. More than 30 years ago, Muscio and Sowton made an effort to measure aptitude for typing in London.

FIVE TYPES OF QUESTIONS WERE INCLUDED IN THIS TYPE OF QUESTION:

- (1) Reproduction of sentences immediately after they are read
- (2) Carrying out directions,
- (3) Calculating products of numbers,
- (4) Completion of sentences, and
- (5) Spelling test.

THE MINNESOTA CLERICAL TEST:

This test is designed to select persons for accountancy and book-keeping. Super recommends that it can be used with adolescents but very cautiously. Besides there is Johnson O'cannon's clerical test

ART APTITUDE TESTS:

Seashore and Meier devised an Art Judgment Test. It consists of 125 pairs of pictures. Each pair consists of two pictures painted by some famous artists, one picture being of a superior quality and the other of inferior type. The person taking the test is shown these pictures and asked to select from each pair the one that is the "More pleasing, more artistic, more satisfying." After counting the score, we find the aptitude of the subject for art. Another test that may be mentioned in this category is of McAdory Art Test.

SEASHORE MUSICAL TESTS:

These tests are designed to measure pitch, intensity, time timber, tonal memory and rhythm – the factors which determine the suitability of a man in music. Seashore established a clinic at the University of Law in 1916 for testing musical capacity.

THE ASSESSMENT IS MADE ON THE FOLLOWING BASES:

I. Musical Sensitivity which takes note of:

Simple form of impression, which includes

- (i) Sense of pitch,
- (ii) Sense of intensity,
- (iii) Sense of time,
- (iv) Sense of extensity.

(4) TESTS OF SCIENTIFIC APTITUDE:

"This two-hour test for students in college and senior high school has been shown to reveal at least as much about the relative scientific aptitude of college students as science teachers discover after a semester or more of contact with them. It provides an indication of aptitude for the various branches of engineering, chemistry, physics, biology and other work in which success depends in part upon the ability to profit by training in scientific method.

Performance is relatively independent of acquired knowledge. Whatever specific information is needed is furnished in the test. Since, it makes no attempt to ascertain whether a person actually knows enough about mathematics for example, to enable him to profit by engineering studies, such information must be sought from the school record or from standard achievement test." – Bingham

CONSTRUCTION INVOLVES THESE PROCESSES:

- (a) A careful analysis of the occupation into its elements,
- (b) Determination of the psychological qualities important in respect of each element,
- (c) Testing of individuals for these qualities,
- (d) Finding out the correlation between performance in the test and performance in the occupation.

EDUCATIONAL APTITUDE TEST:

Yele has developed a battery of educational aptitude test to measure a person's relative aptitude in:

- i. Linguistic ability
- ii. Verbal reasoning
- iii. Quantitative reasoning
Verbal ability
- iv. Mathematical aptitude
- v. Teaching aptitude and
- vi. Spatial visualizing

(5) TEACHING APTITUDE TEST:

Teaching aptitude test may broadly contain three types of test items:

- (1) Test items relating to knowledge in the areas of aptitude test, teachers trait test, teaching efficiency inventories, teaching attitude test, and tests of intelligence and general mental ability.
- (2) Test items relating to the application of principles in various areas related to teaching.
- (3) Test items relating to education and allied areas of a miscellaneous nature.

BROAD AREAS RELATING TO TEACHING APTITUDE:

Teaching aptitude, would to a large extent, be determined by the candidate's knowledge in the following areas:

- 1. Educational thought-the contribution of great educators.
- 2. Standard work on education
- 3. Pupil-teacher relations.
- 4. Special needs of backward and gifted students.
- 5. Educational practices in general.
- 6. Teaching techniques for special subjects.
Evaluation and measurement
- 7. Institutional planning.
- 8. Planning individual lesson.
- 9. Role of mass media in education.

CONSTRUCTION AND STANDARDISATION OF THE APTITUDE TEST FOR SECONDARY SCHOOL TEACHERS:

B.M. Upadhyaya, Ph. D. Psychology, Saurashtra University, 1976. The test included 125 items.

It was found that sex and socio-economic backgrounds were not related to aptitude for teaching, whereas academic discipline and previous experiences of teaching were found to be significantly related to aptitude for teaching.

7. Construction and Standardisation of an Aptitude Test for Primary School Teachers in Gujarat State. D.P. Patel, Ph.D. Education, South Gujarat University, 1980.

THE TEST COVERED THE FOLLOWING TEN TEACHER TRAITS:

1. Interest in the profession.
 2. Attitude towards community.
 3. Mental ability.
 4. Professional information.
 5. Attitude towards children.
- Personality assessment Psychology

Personality	assessment,	the measurement of	personal
characteristics.	Assessment is	an end result of	gathering

information intended to advance psychological theory and research and to increase the probability that wise decisions will be made in applied settings (e.g., in selecting the most promising people from a group of job applicants).

The approach taken by the specialist in personality assessment is based on the assumption that much of the observable variability in behaviour from one person to another results from differences in the extent to which individuals possess particular underlying personal characteristics (traits). The assessment specialist seeks to define these traits, to measure them objectively, and to relate them to socially significant aspects of behaviour.

A distinctive feature of the scientific approach to personality measurement is the effort, wherever possible, to describe human characteristics in quantitative terms. How much of a trait manifests itself in an individual? How many traits are present? Quantitative personality measurement is especially useful in comparing groups of people as well as individuals.

Do groups of people from different cultural and economic backgrounds differ when considered in the light of their particular personality attributes or traits? How large are the group differences?

Overt behaviour is a reflection of interactions among a wide range of underlying factors, including the bodily state of the individual and the effects of that person's past personal experiences. Hence, a narrowly focused approach is inadequate to do justice to the complex human behaviour that occurs under the constantly changing set of challenges, pleasures, demands, and stresses of everyday life. The sophisticated measurement of human personalit

inescapably depends on the use of a variety of concepts to provide trait definitions and entails the application of various methods of observation and evaluation. Personality theorists and researchers seek to define and to understand the diversity of human traits, the many ways people have of thinking and perceiving and learning and emoting.

Such nonmaterial human dimensions, types, and attributes are constructs—in this case, inferences drawn from observed behaviour. Widely studied personality constructs include anxiety, hostility, emotionality, motivation, and introversion-extroversion. Anxiety, for example, is a concept, or construct, inferred in people from what they say, their facial expressions, and their body movements.

Personality is interactional in two senses. As indicated above, personal characteristics can be thought of as products of interactions among underlying psychological factors; for example, an individual may experience tension because he or she is both shy and desirous of social success. These products, in turn, interact with the types of situations people confront in their daily lives. A person who is anxious about being evaluated might show debilitated performance in evaluative situations (for example, taking tests), but function well in other situations in which an evaluative emphasis is not present. Personality makeup can be either an asset or a liability depending on the situation. For example, some people approach evaluative situations with fear and foreboding, while others seem to be motivated in a desirable direction by competitive pressures associated with performance.

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MEASURING CONSTRUCTS

Efforts to measure personality constructs stem from a variety of sources. Frequently they grow out of theories of personality; anxiety and repression (the forgetting of unpleasant experiences), for example, are among the central concepts of the theory of psychoanalysis. It is understandable that efforts would be made to quantify one's degree of anxiety, for example, and to use the score thus obtained in the assessment of and in the prediction of future behaviour. Among the major issues in the study of personality measurement is the question of which of the many personality constructs that have been quantified are basic or fundamental and which can be expected to involve wasted effort in their measurement because they represent poorly defined combinations of more elemental constructs; which measurement techniques are most effective and convenient for the purpose of assessment; and whether it is better to interview people in measuring personality, or to ask them to say, for example, what an inkblot or a cloud in the sky reminds them of.

ASSESSMENT METHODS

Personality tests provide measures of such characteristics as feelings and emotional states, preoccupations, motivations, attitudes, and approaches to interpersonal relations. There is a diversity of approaches to personality assessment, and controversy surrounds many aspects of the widely used methods and techniques. These include such assessments as the interview, rating scales, self-reports, personality inventories, projective techniques, and behavioral observation

INTEREST INVENTORIES PERSONALITY INVENTORIES

Among the most common of self-report tests are personality

inventories. Their origins lie in the early history of personality measurement, when most tests were constructed on the basis of so-called face validity; that is, they simply appeared to be valid. Items were included simply because, in the fallible judgment of the person who constructed or devised the test, they were indicative of certain personality attributes. In other words, face validity need not be defined by careful, quantitative study; rather, it typically reflects one's more-or-less imprecise, possibly erroneous, impressions. Personal judgment, even that of an expert, is no guarantee that a particular collection of test items will prove to be reliable and meaningful in actual practice.

A widely used early self-report inventory, the so-called Woodworth Personal Data Sheet, was developed during World War I to detect soldiers who were emotionally unfit for combat. Among its ostensibly face-valid items were these: Does the sight of blood make you sick or dizzy? Are you happy most of the time? Do you sometimes wish you had never been born? Recruits who answered these kinds of questions in a way that could be taken to mean that they suffered psychiatric disturbance were detained for further questioning and evaluation. Clearly, however, symptoms revealed by such answers are exhibited by many people who are relatively free of emotional disorder.

Rather than testing general knowledge or specific skills, personality inventories ask people questions about themselves. These questions may take a variety of forms. When taking such a test, the subject might have to decide whether each of a series of statements is accurate as a self-description or respond to a series of true-false questions about personal beliefs.

Several inventories require that each of a series of statements be placed on a rating scale in terms of the frequency or adequacy with which the statements are judged by the individual to reflect his tendencies and attitudes. Regardless of the way in which the subject responds, most inventories yield several scores, each intended to identify a distinctive aspect of personality.

One of these, the Minnesota Multiphasic Personality Inventory (MMPI), is probably the personality inventory in widest use in the English-speaking world. Also available in other languages, it consists in one version of 550 items (e.g., "I like tall women") to which subjects are to respond "true," "false," or "cannot say." Work on this inventory began in the 1930s, when its construction was motivated by the need for a practical, economical means of describing and predicting the behaviour of psychiatric patients. In its development efforts were made to achieve convenience in administration and scoring and to overcome many of the known defects of earlier personality inventories.

Varied types of items were included and emphasis was placed on making these printed statements (presented either on small cards or in a booklet) intelligible even to persons with limited reading ability.

Most earlier inventories lacked subtlety; many people were able to fake or bias their answers since the items presented were easily seen to reflect gross disturbances; indeed, in many of these inventories maladaptive tendencies would be reflected in either all true or all false answers. Perhaps the most significant methodological advance to be found in the MMPI was the attempt

on the part of its developers to measure tendencies to respond, rather than actual behaviour, and to rely but little on assumptions of face validity.

The true-false item "I hear strange voices all the time" has face validity for most people in that to answer "true" to it seems to provide a strong indication of abnormal hallucinatory experiences. But some psychiatric patients who "hear strange voices" can still appreciate the socially undesirable implications of a "true" answer and may therefore try to conceal their abnormality by answering "false."

A major difficulty in placing great reliance on face validity in test construction is that the subject may be as aware of the significance of certain responses as is the test constructor and thus may be able to mislead the tester.

Nevertheless, the person who hears strange voices and yet answers the item "false" clearly is responding to something—the answer still is a reflection of personality, even though it may not be the aspect of personality to which the item seems to refer; thus, careful study of responses beyond their mere face validity often proves to be profitable.

Much study has been given to the ways in which response sets and test-taking attitudes influence behaviour on the MMPI and other personality measures.

The response set called acquiescence, for example, refers to one's tendency to respond with "true" or "yes" answers to questionnaire items regardless of what the item content is. It is conceivable that two people might be quite similar in all respects except for the tendency toward acquiescence. This difference in response set can lead to misleadingly different scores on personality tests.

One person might be a "yea-sayer" (someone who tends to answer true to test items); another might be a "nay-sayer"; a third individual might not have a pronounced acquiescence tendency in either direction.

Acquiescence is not the only response set; there are other test-taking attitudes that are capable of influencing personality profiles. One of these, already suggested by the example of the person who hears strange voices, is social desirability. A person who has convulsions might say "false" to the item "I have convulsions" because he believes that others will think less of him if they know he has convulsions.

The intrusive potentially deceiving effects of the subjects' response sets and test-taking attitudes on scores derived from personality measures can sometimes be circumvented by varying the content and wording of test items. Nevertheless, users of questionnaires have not yet completely solved problems of bias such as those arising from response sets. Indeed, many of these problems first received widespread attention in research on the MMPI, and research on this and similar inventories has significantly advanced understanding of the whole discipline of personality testing.

ATTRIBUTES OF THE MMPI

The MMPI as originally published consists of nine clinical scales (or sets of items), each scale having been found in practice to discriminate a particular clinical group, such as people suffering from schizophrenia, depression, or paranoia (see mental disorder). Each of these scales (or others produced later) was developed b

determining patterns of response to the inventory that were observed to be distinctive of groups of individuals who had been psychiatrically classified by other means (e.g., by long-term observation).

The responses of apparently normal subjects were compared with those of hospital patients with a particular psychiatric diagnosis—forexample, with symptoms of schizophrenia. Items to which the greatest percentage of “normals” gave answers that differed from those more typically given by patients came to constitute each clinical scale.

In addition to the nine clinical scales and many specially developed scales, there are four so-called control scales on the inventory. One of these is simply the number of items placed by the subject in the “cannot say” category.

The L (or lie) scale was devised to measure the tendency of the testtaker to attribute socially desirable attributes to himself. In response to “I get angry sometimes” he should tend to mark false; extreme L scorers in the other direction appear to be too good, too virtuous. Another so-called F scale was included to provide a reflection of the subjects’ carelessness and confusion in taking the inventory (e.g., “Everything tastes the same” tends to be answered true by careless or confused people).

More subtle than either the L or F scales is what is called the K scale. Its construction was based on the observation that some persons tend to exaggerate their symptoms because of excessive openness and frankness and may obtain high scores on the clinical scales; others may exhibit unusually low scores because of defensiveness. On the K-scale item “I think nearly anyone would tell a lie to keep out of trouble,” the defensive person is apt to answer false, giving the same response to “I certainly feel useless at times.”

The K scale was designed to reduce these biasing factors; by weighting clinical-scale scores with K scores, the distorting effect of test-taking defensiveness may be reduced.

In general, it has been found that the greater the number and magnitude of one’s unusually high scores on the MMPI, the more likely it is that one is in need of psychiatric attention.

Most professionals who use the device refuse to make assumptions about the factualness of the subject’s answers and about his personal interpretations of the meanings of the items. Their approach does not depend heavily on theoretical predilections and hypotheses. For this reason the inventory has proved particularly popular with those who have strong doubts about the eventual validity that many theoretical formulations will show in connection with personality measurement after they have been tested through painstaking research.

The MMPI also appeals to those who demand firm experimental evidence that any personality assessment method can make valid discriminations among individuals.

COMPARISON OF THE MMPI AND CPI

The MMPI has been considered in some detail here because of its wide usage and because it illustrates a number of important problems confronting those who attempt to assess personality characteristics. Many other omnibus personality inventories are also used in applied settings and in research. The California Psychological Inventory (CPI), for example, is keyed for severe personality variables that include sociability, self-control, flexibility, and tolerance. Unlike the

MMPI, it was developed specifically for use with “normal” groups of people.

Whereas the judgments of experts (usually psychiatric workers) were used in categorizing subjects given the MMPI during the early item-writing phase of its development, nominations by peers (such as respondents or friends) of the subjects were relied upon in work with the CPI. Its technical development has been evaluated by test authorities to be of high order, in part because its developers profited from lessons learned in the construction and use of the MMPI. It also provides measures of response sets and has been subjected to considerable research study.

OTHER SELF-REPORT TECHNIQUES

Beyond personality inventories, there are other self-report approaches to personality measurement available for research and applied purposes. Mention was made earlier of the use of rating scales. The rating-scale technique permits quantification of an individual’s reactions to himself, to others, and, in fact, to any object or concept in terms of a standard set of semantic (word) polarities such as “hot-cold” or “good-bad.” It is a general method for assessing the meanings of these semantic concepts to individuals.

Another method of self-report called the Q-sort is devised for problems similar to those for which rating scales are used. In a Q-sort a person is given a set of sentences, phrases, or words (usually presented individually on cards) and is asked to use them to describe himself (as he thinks he is or as he would like to be) or someone else. This description is carried out by having the subject sort the items on the cards in terms of their degree of relevance so that they can be distributed along what amounts to a rating scale. Examples of descriptive items that might be included in a Q-sort are “worries a lot,” “works hard,” and “is cheerful.”

Typical paper-and-pencil instruments such as personality inventories involve verbal stimuli (words) intended to call forth designated types of responses from the individual. There are clearly stated ground rules under which he makes his responses. Paper- and-pencil devices are relatively easy and economical to administer and can be scored accurately and reliably by relatively inexperienced clerical workers.

They are generally regarded by professional personality evaluators as especially valuable assessment tools in screening large numbers of people, as in military or industrial personnel selection.

Assessment specialists do not assume that self-reports are accurate indicators of personality traits. They are accepted, rather, as samples of behaviour for which validity in predicting one’s everyday activities or traits must be established empirically (i.e., by direct observation or experiment). Paper-and-pencil techniques have moved from their early stage of assumed (face) validity to more advanced notions in which improvements in conceptualization and methodology are clearly recognized as basic to the determination of empirical validity

WHAT IS ATTITUDE SCALES – SEMANTIC DIFFERENTIAL, STAPLES, LIKERT SCALE
COMPUTER-BASED PSYCHOLOGICAL TESTING ?

**ATTITUDE SCALES – SEMANTIC DIFFERENTIAL, STAPLES, LIKERT SCALE
COMPUTER-BASED PSYCHOLOGICAL TESTING**

Direct Attitude Measures

Perhaps the most straightforward way of finding out about someone's attitudes would be to ask them. However, attitudes are related to self-image and social acceptance.

In order to preserve a positive self-image, people's responses may be affected by social desirability. They may not well tell about their true attitudes, but answer in a way that they feel socially acceptable.

Given this problem, various methods of measuring attitudes have been developed. However, all of them have limitations. In particular the different measures focus on different components of attitudes – cognitive, affective and behavioral – and as we know, these components do not necessarily coincide.

Attitude measurement can be divided into two basic categories

SEMANTIC DIFFERENTIAL

The semantic differential technique of Osgood et al. (1957) asks a person to rate an issue or topic on a standard set of bipolar

adjectives (i.e. with opposite meanings), each representing a seven point scale.

To prepare a semantic differential scale, you must first think of a number of words with opposite meanings that are applicable to describing the subject of the test.

For example, participants are given a word, for example 'car', and presented with a variety of adjectives to describe it. Respondents tick to indicate how they feel about what is being measured.

In the picture (above), you can find Osgood's map of people's ratings for the word 'polite'. The image shows ten of the scales used by Osgood. The image maps the average responses of two groups of 20 people to the word 'polite'.

The semantic differential technique reveals information on three basic dimensions of attitudes: evaluation, potency (i.e. strength) and activity.

- **Evaluation** is concerned with whether a person thinks positively or negatively about the attitude topic (e.g. dirty – clean, and ugly - beautiful).
- **Potency** is concerned with how powerful the topic is for the person (e.g. cruel – kind, and strong - weak).
- **Activity** is concerned with whether the topic is seen as active or passive (e.g. active – passive).

Using this information we can see if a person's feeling (evaluation) towards an object is consistent with their behavior. For example, a place might like the taste of chocolate (evaluative) but not eat it often (activity)

The evaluation dimension has been most used by social psychologists as a measure of a person's attitude because this dimension reflects the affective aspect of an attitude.

Evaluation of Direct Methods

An attitude scale is designed to provide a valid, or accurate, measure of an individual's social attitude. However, as anyone who has every "faked" an attitude scales knows there are shortcomings in these self-report scales of attitudes.

There are various problems that affect the validity of attitude scales. However, the most common problem is that of social desirability.

Socially desirability refers to the tendency for people to give "socially desirable" to the questionnaire items. People are often motivated to give replies that make them appear "well adjusted", unprejudiced, open minded and democratic. Self-report scales that measure attitudes towards race, religion, sex etc. are heavily affected by socially desirability bias.

Respondents who harbor a negative attitude towards a particular group may not wish be admit to the experimenter (or to themselves) that they have these feelings. Consequently, responses on attitude scales are not always 100% valid.

HIGH-DIMENSIONAL CONTEXT SPACES

Osgood et al.'s semantic differential can also be seen as a predecessor of contemporary corpus-derived measures of semantics and semantic similarity. For example, Burgess and Lund's (1997) hyperspace analogue to language model (HAL) learns a high-dimensional context from large-scale linguistic corpora

that encompass many millions of words of speech or text. The model tracks lexical co-occurrences throughout the corpus and from these derives a high-dimensional representational space. The meaning of a word is conceived of as a vector. Each element of this vector corresponds to another word in the model, with the value of an element representing the number of times that the two words co-occurred within the discourse samples that constitute the corpus. For example, the vector for dog will contain an element reflecting the number of times that the word 'bone' was found within a given range of words in the corpus. These vectors can be viewed as the coordinates of points (individual words) in a high-dimensional semantic space. Semantic similarity is then a matter of distance between points in this space.

Several other such usage-based models have been proposed to date; similar in spirit to HAL, for example, is Lindauer and Dumas's (1997) latent semantic analysis (see also Semantic Processing: Statistical Approaches). The basic approach might be seen to be taking to its logical consequence Wittgenstein's famous adage of 'meaning as use.'

Its prime advantage over related approaches such as spatial models of similarity and the semantic differential lies in the ability to derive semantics and thus measures of semantic similarity for arbitrarily large numbers of words without the need for any especially collected behavioral data. The ability of these models to capture a wide variety of phenomena, such as results in semantic priming and effects of semantic context on syntactic processing, has been impressive.

Staple scale

Staple scale is defined as a rating scale that is close-ended with a single adjective (unipolar), developed to gather respondent insights about a particular subject or event. The survey question

is comprised of an even number of response options without a neutral point.

For example, these options can range from any scales like +2 to -2 or +5 to -5 or even +10 to -10 and they are purely dependent on the nature of the study and the required outcome, all without a neutral point. The stapel scale can be indicated as standalone questions or even as a matrix question type where each line item is one unique adjective.

This scale was named after its developer, Jan Staple. Since this is a non-comparative and categorical scale, it makes it very similar to a semantic differential scale with the sole difference being the presence of only adjective in between a positive and negative category rather than having two opposing adjectives. Respondents must indicate the relevance of each characteristic to an object in the question.

An example of the use of staple scale question in a survey is understanding the competency level of a respondent's supervisor on the basis of some basic skills. This question helps the surveyor understand if the top management of the company is fit to be in the role or not or if they could get to a certain level with training.

CHARACTERISTICS OF STAPEL SCALE

The scale can be depicted either as vertical or a horizontal scale with one single adjective in the middle of the range of values and the respondent has to choose a numerical value that best defines the validity of the adjective

- **Agreement and Disagreement:** A positive score accurately describes the object, and a negative score is the exact opposite; the statement is incorrect. Higher up the rating scale indicates a higher acceptance with the single adjective and a lower negative score indicates the disagreement with the adjective. This directly equates to the + rating being a strong agreement and the – rating being strong disagreement.
- **Data Analysis:** The data collected in a stapel scale survey is treated as an interval and it can be analyzed in the same way as the data collected by using a semantic differential survey type. The results in both question types are similar.
- **No Need of Bipolarity:** Due to the nature of the question, one adjective and the subsequent rating is adequate to collect feedback about a certain adjective. This question type is used when there is difficulty in finding out bipolar adjectives or there is difficulty in pre-testing of adjectives to ensure their true bipolarity.

STAPEL SCALE SURVEY USED

A staple scale survey is used to conduct an in-depth data analysis about each metric in a question and that is done by having to select from that a numerical value is assigned to each metric or adjective. Staple scale questions allow flexibility to tweak a survey in a way that suits the research objective. The survey respondent can be asked questions in a way that they offer maximum value about each metric.

Stapel scale surveys are generally used in customer-satisfaction surveys due to the nature of the questions asked and the numerical data collected. The researcher or the organization conducting

survey uses staple scale questions to rate each parameter of their product or service individually. This provides a complete snapshot of aspects and is important in understanding if their business is doing well and what is not.

USE STAPEL SCALE QUESTIONS IN YOUR SURVEY RESEARCH

- **Easy to administer:** Stapel scale questions are very easy to administer due to the nature of how they are set-up. They are used effectively due to the rating nature of the responses which makes it easier for a survey respondent to answer the question correctly.
- **Reduce survey drop off rate:** The options provided in a question are administered separately with each adjective forming one option and one question can have multiple options. This makes it easier for a survey respondent to answer each option on the basis of each objective rather than be forced to select between two or more objectives. This reduces the drop-off rate in a survey.
- **Collect actionable insights:** Each objective is provided a numerical value and each adjective forces a respondent to respond rather than leaving it blank. This helps collect a higher level of actionable insights.

THE DIFFERENCE BETWEEN STAPEL SCALE AND SEMANTIC DIFFERENTIAL QUESTIONS IN A SURVEY:

Although the data collected in both, stapel scale surveys and semantic differential scales are similar, there are some other stark differences between them. Some of the major differences are:

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-Stapel Scale Questions-Semantic Differential Questions

In a stapel scale survey, the options are **unipolar**. The rating given to each question is on the basis of one objective

In a semantic differential question, the options are **bipolar**. The rating provided in a question is on the basis of two polar opposite objectives.

There is **no neutral point** in a staple scale question which means each option can describe the objective. -The semantic differential **allows for a neutral** which means that a survey respondent can question unanswered if the bipolar objectives do not appropriately define the experience.

-There is no capped number of responses as long as the number of **responses are even**. -There are generally **seven responses** from highly unlikely to highly likely.

-Each stapel scale survey question has **forced responses** due to the lack -Semantic differential survey questions provide the

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-of a neutral zero option. -flexibility for **unforced responses** due to the presence of a neutral option.-

-The options are represented **numerically**. -
The options are represented **textually**. -

Advantages of using a Stapel Scale

The stapel scale survey has many advantages. Some of them are:

- **Easy to understand and respond to:** A stapel scale question is easy to understand and respond to as there is a + and – rating system for each adjective in the stapel scale survey. This makes it very easy for each survey respondent to understand and to reply to.
- **Numerical labels:** Numerical labels reduce all possible ambiguity in the mind of a respondent about their feeling towards an objective or metric. This ensures that the option selected by the survey respondent numerically represents their emotions towards that object.
- **Forces a response as there is no neutral or zero:** A stapel scale survey helps collect the ideal or most ideal response to a question as it eliminates the possibility of a neutral answer leaving each objective to be aptly selected.

Measures both the direction and the intensity of attitudes simultaneously: Since the stapel scale question looks to measure each objective separately, there is a deeper rooted clarity on the direction and intensity of each objective separately. The “how positive” or “how negative” throws light on the degree of each objective in the mind of the respondent.

LIKERT SCALE DEFINITION, EXAMPLES AND ANALYSIS

Various kinds of rating scales have been developed to measure attitudes directly (i.e. the person knows their attitude is being studied). The most widely used is the Likert scale (1932).

In its final form, the Likert scale is a five (or seven) point scale which is used to allow the individual to express how much they agree or disagree with a particular statement.

For example:

I believe that ecological questions are the most important issues facing human beings today.

A Likert scale assumes that the strength/intensity of an attitude is linear, i.e. on a continuum from strongly agree to strongly disagree, and makes the assumption that attitudes can be measured.

For example, each of the five (or seven) responses would have a numerical value which would be used to measure the attitude under investigation.

Likert Scale Examples for Survey

In addition to measuring statements of agreement, Likert scales can measure other variations such as frequency, quality, importance, and likelihood, etc.

How can you analyze data from a Likert scale?

The response categories in Likert scales have a rank order, but the intervals between values cannot be presumed equal.

Therefore, the mean (and standard deviation) are inappropriate for ordinal data (Jamieson, 2004)

Statistics you can use are:

- Summarize using a median or a mode (not a mean as it is ordinal scale data); the mode is probably the most suitable for easy interpretation.
- Display the distribution of observations in a bar chart (it can't be a histogram, because the data is not continuous).

CRITICAL EVALUATION

Strengths

Likert Scales have the advantage that they do not expect a simple yes / no answer from the respondent, but rather allow for degrees of opinion, and even no opinion at all.

Therefore quantitative data is obtained, which means that the data can be analyzed with relative ease.

Offering anonymity on self-administered questionnaires should further reduce social pressure, and thus may likewise reduce social desirability bias Paulus (1984) found that more desirable personality characteristics were reported when people were asked to write their names, addresses and telephone numbers on their questionnaire than when they told not to put identifying information on the questionnaire.

Limitations

However, like all surveys, the validity of the Likert scale attitude measurement can be compromised due to social desirability.

This means that individuals may lie to put themselves in a positive light.

COMPUTER-BASED TEST INTERPRETATION IN PSYCHOLOGICAL ASSESSMENT

Computers are playing an ever increasing role in the administration and scoring of psychological tests, and in the generation of interpretative reports of test results. As a result of concerns that this enhanced role of the computer has not always been applied with the same ethical, professional, and technical standards that govern the traditional means of testing and test interpretation, the American Psychological Association has put forth the Guidelines for Computer-Based Tests and Interpretations. Of the 31 CBTI Guidelines, nine describe user responsibilities in two areas, administration and interpretation. These user guidelines emphasize standardization of administrative procedures and the need for professional judgment in conjunction with the use of computer-generated interpretative reports.

The guidelines for developers are more numerous and complex as a result of the multitude of steps required in the design of system that either administer/score or interpret test results. In

the case of systems to administer/score tests, there are human factor and psychometric issues. With respect to interpretation, the areas of concern are classification and validity. The final section contains one guideline specifying reasonable access to computer-based test systems by qualified professionals for purposes of scholarly review. The CBTI Guidelines are designed to address the problems that already exist with computer testing and interpretation while at the same time keeping in mind the promise of this new technology.

As the educational applications of computing have continued to evolve, more complex and interactive computer learning environments have emerged. Generally, these environments focus on providing students with experiences testing hypothesis, organizing and interpreting data, and performing other problem-solving activities within a particular content area. In this article, the complexity of educating teachers so that they can effectively

utilize this software and integrate it into the curriculum is discussed. It is suggested that teachers are accustomed to delivering and evaluating curriculum in the framework of behavioral psychology and that the more cognitive orientation of computer learning environments will be difficult for teachers to implement.

The article suggests that experiences for teachers must include the opportunity to experience learning and problem-solving with tool software and simulations and examination of these approaches with respect to views of the learner, goals, roles of the teacher, and evaluation of outcomes. A sample experience for teachers using the Logo language is described

APPLICATIONS OF PSYCHOLOGICAL TESTING IN VARIOUS SETTINGS: CLINICAL

Psychological tests enable mental health professionals to make diagnoses more reliably, validly, and quickly than they can from personal observation alone. Tests can uncover problems that a mental health professional may not detect until much later. This allows the clinician to focus on the appropriate treatment more quickly, thereby saving time and money for the patient or client. Once a course of treatment has begun, tests can help the clinician monitor the effectiveness of the treatment as it proceeds.

Tests are not designed to label people. In fact, responsible test manuals discourage any such linkage between results and labels. These manuals help users interpret the test results in a way that respects each individual's uniqueness. They also recommend that the test user base diagnoses or clinical decisions on several sources of information rather than on just a single test result.

However, some public groups such as insurance companies, legislatures, school boards, and human service agencies do attach labels to people. This happens when programs and treatments are standardized by categories. Thus, an individual seeking treatment or a child with learning problems often has to be diagnosed and labeled to fit into one of the categories in order to receive funding for the special help they need.

DO CLINICAL PSYCHOLOGISTS USE DIFFERENT TESTS FROM THOSE USED IN BUSINESSES OR IN SCHOOLS?

Sometimes. But most psychological tests, especially those measuring motor skills and mental aptitudes, can be useful in more than one field. A test for cognitive ability, for example, may be used in a school or at an employment office as well as by a mental health clinician. Also, some

tests require high levels of training and expertise of test users for proper administration and interpretation.

CAN A TEST PROVE THAT SOMEBODY IS MENTALLY DISTURBED?

Tests alone cannot diagnose a person. They are tools used only by qualified and competent professionals, just as a physician may combine information from X-rays, blood tests, and personal examination of the patient in reaching a physical diagnosis.

WHAT GOOD ARE TESTS WHEN SOMEBODY HAS ALREADY BEEN DIAGNOSED WITH A PSYCHIATRIC DISORDER?

Psychological tests are often used to monitor a person's response to medications, which are used increasingly in treating a number of disorders, including depression, schizophrenia, and attention deficit disorder in children. The tests can help to track progress during a course of treatment to determine if a person is receiving the correct dosage, or is responding correctly to the medication. In a similar manner, tests can help monitor a person's response to other therapeutic treatments such as psychotherapy. Tests can also serve to confirm or reject potential diagnoses.

SINCE WE NOW HAVE MODERN MEDICAL PROCEDURES, SUCH AS MAGNETIC RESONANCE IMAGING (MRI), WHY DO WE NEED NEUROPSYCHOLOGICAL TESTS?

It's true that medical imaging techniques are now widely used to help physicians diagnose neurological illnesses. However, neuropsychological tests are useful for screening patients for signs of neurological disorder. They are also helpful, and far less expensive than computerized tomography (CT) scans and MRIs, for monitoring patients over long periods of recovery or rehabilitation. Through neuropsychological testing, a physician can measure the progress of stroke victims, for example, and determine whether a particular treatment is working properly.

Psychological assessment contributes important information to the understanding of individual characteristics and capabilities, through the collection, integration, and interpretation of information about an individual (Groth-Marnat, 2009; Weiner, 2003). Such information is obtained through a variety of methods and measures, with relevant sources determined by the specific purposes of the evaluation. Sources of information may include

- Records (e.g., medical, educational, occupational, legal) obtained from the referral source;
- Records obtained from other organizations and agencies that have been identified as potentially relevant;
- Interviews conducted with the person being examined;
- Behavioral observations;
- Interviews with corroborative sources such as family members, friends, teachers, and others; and
- Formal psychological or neuropsychological testing.

Agreements across multiple measures and sources, as well as discrepant information, enable the creation of a more comprehensive understanding of the individual being assessed, ultimately leading to more accurate and appropriate clinical conclusions (e.g., diagnosis, recommendations for treatment planning)

The clinical interview remains the foundation of many psychological and neuropsychological

assessments. Interviewing may be structured, semi structured, or open in nature, but the goal of the interview remains consistent—to identify the nature of the client's presenting issues, to obtain direct historical information from the examinee regarding such concerns, and to explore historical variables that may be related to the complaints being presented. In addition, the interview element of the assessment process allows for behavioral observations that may be useful in describing the client, as well as discerning the convergence with known diagnoses.

Based on the information and observations gained in the interview, assessment instruments may be selected, corroborative informants identified, and other historical records recognized that may aid the clinician in reaching a diagnosis. Conceptually, clinical interviewing explores the presenting complaint(s) (i.e., referral question), informs the understanding of the case history, aids in the development of hypotheses to be examined in the assessment process, and assists in determination of methods to address the hypotheses through formal testing.

INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY

Industrial and organizational psychology, also known as I/O psychology, is the study of the workplace.

According to the American Psychological Association, I/O psychology pulls from ideas about decision theory, small group theory, and criterion theory. It applies them to real-world workplace situations.

This field focuses on analyzing employee engagement, company culture, retention, productivity, morale, and team building

Industrial and organizational psychologists can work with individual employees, groups, management teams, and consultants on improving the above processes.

For Dr. Jeremy Nicholson, a TCSP professor of behavioral economics, I/O psychology is “a standardized skillset” that includes personnel selection, workplace training, business development, human resources, and consulting.

Are you interested in pursuing an industrial and organizational psychology degree? Whether you're looking for an online program or an on-campus degree program near you, The Chicago School offers a certificate and a variety of M.A. programs in this field.

business psychology?

While I/O psychology focuses on more individual and personal workplace issues such as engagement and morale, business psychology applies psychological practices to big-picture areas.

These areas include corporate strategy, stakeholder relationships, market performance, and broader business operations. Professionals who are knowledgeable of this intersection between psychology and business use assessment and intervention skills to analyze high-level issues and provide recommendations to a business leadership team.

This career field includes consultants, program directors, and organizational development specialists. Oftentimes, business psychologists work with senior leadership teams, business

owners, and board members.

The Chicago School offers various I/O and business psychology degrees and certificates including

- Certificate in I/O psychology (online)
- B.A. in psychology with a business psychology minor (online)
- M.A. in I/O psychology (online and various campuses)
- Ph.D. in business psychology (online and various campuses)
- M.A. and Ph.D. in Organizational Leadership (online and various campuses)

Two intertwined fields

Of course, I/O psychology and business psychology are clearly linked. Both work to improve the overall function, performance, and efficiency of businesses.

The merging of these two disciplines creates the possibility for professionals to establish themselves as authorities with multiple psychological foundations that are rooted in business-minded practices. Professionals in I/O and business psychology are not only able to navigate business fields but also understand and describe the psychological nuance that drives individual behavior—and this, makes them more versatile.

According to Dr. Jay Finkelman, a TCSPP professor of I/O business psychology and the department chair of the Southern California campuses, “they all fit under the same umbrella.”

This overlap is clear even in The Chicago School’s degree tracks. For example, you can pursue a business psychology degree with an industrial and organizational focus.

Finally, many I/O psychologists cover corporate strategy, and business psychologists analyze issues such as employee retention and productivity. All aspects of a business are intertwined, so it’s inevitable that two psychology fields that specialize in helping businesses succeed are intertwined.

EDUCATION, COUNSELING, MILITARY. CAREER GUIDANCE

Career Counseling This section summarizes the development of career counseling, the most widely used career counseling interventions, the typical settings in which career counseling occurs, important differences among clients who seek career counseling services, the focal issues examined in career counseling, and the career counseling process. The articles appearing in this section describe these topics in greater detail (see the sidebar for links).

DEVELOPMENT OF CAREER COUNSELING

The theoretical underpinnings of career counseling were first recorded around 360 B.C. when Plato observed in *The Republic* that different jobs require different types of workers for optimal performance. Today we regard this as obvious; the jobs of elementary school teacher, truck driver, opera singer, and accountant each require a different set of skills and interests.

Frank Parsons formalized this theory of the relation between people and jobs in the late 19th century. He wrote that effective career placement requires knowledge of the special talents of

the worker, the requirements of various occupations, and the relations between these sets of knowledge. Over time Parsons's ideas have been codified into the person-environment fit model and trait and factor counseling. The overlapping disciplines of counseling psychology, vocational psychology, and career counseling emerged from this beginning. Three crises, World Wars I and II and the Great Depression, helped shape career counseling. Prior to World War I, French scholars Alfred Binet and Theodore Simon developed a test to measure cognitive ability. Their work paved the way for modern intelligence tests. Entry into World War I suddenly confronted the United States with the need to place hundreds of thousands of workers into suitable jobs.

Using the Binet-Simon approach as a starting point, the U.S. Army developed a series of tests (e.g., the Army Alpha and Army Beta) to measure cognitive aptitudes. Scores of these tests were used to place military recruits into suitable jobs. This work developed and validated a model of vocational placement that has been a key component of career counseling for over 90 years.

The Great Depression focused attention on the nation's workforce and provided another stimulus to the development of career counseling. Under the leadership of Donald G. Paterson at the University of Minnesota, the Minnesota Employment Stabilization Research Institute (MESRI) undertook a decade of research on the optimal relation of workers to jobs. MESRI research demonstrated that workers perform better and are less likely to quit or be terminated when placed in occupations that match their interests and aptitudes. The MESRI also developed an extensive library of aptitude tests for use in job placement. MESRI research demonstrated unequivocally that skilled career counseling using a trait-and-factor approach produces beneficial results.

The entry of the United States into World War II again created a need to assign millions of workers to jobs in an efficient manner. The career counseling procedures and instruments developed and validated by the MESRI were applied in the most massive application of career counseling in history.

Following the war, the GI Bill enabled veterans to enter colleges and universities in unprecedented numbers. This created a strong need for career counseling services in those institutions. An even larger number of veterans sought civilian jobs. This created a demand for career counseling services for civilians and stimulated the development of the United States Employment Service.

Clinical psychology was a well-established specialty for treating the mentally ill by the end of World War II. Insightful leaders such as University of Minnesota psychologist John G. Darley recognized that normal individuals sometimes need assistance in dealing with problems confronting them in daily life. Clinical psychologists were ill prepared to provide this assistance, but that is the type of assistance career counseling personnel had been providing. The contemporary specialty of counseling psychology is an outgrowth of the MESRI research, military experience in vocational placement, and Darley's recognition of healthy individuals' needs for developmentally oriented services.

As the United States became more affluent during the 1950s and 1960s, two social movements furthered the development of career counseling. Early 20th-century generations experienced the strife and deprivation of two world wars and the Great Depression, but the baby boom generation experienced a time of relative affluence and tranquility. The earlier generations' survival concerns were replaced by the baby boomers' desire for an occupation that would enhance their quality of life and contribute to a better world. Established workers also began to consider a midlife career change to a more meaningful occupation.

Workers who in earlier times would have unquestioningly followed in their parents' footsteps or taken a job that satisfied their basic survival needs now turned to career counseling for assistance in achieving these goals.

Group Counseling

Group counseling differs from individual counseling in one important respect; group members learn from each other in addition to learning from their interactions with the counselor. This can be particularly valuable to individuals who are early in their career exploration and lack career-related experience and information.

Group career counseling takes a variety of forms. Career development groups include most of the components found in individual career counseling, and they have similar objectives. Group participants typically take tests and participate in a group discussion of their test results. In addition, they may be assigned to complete a computer-based activity, prepare a resume, complete a homework assignment, or interview a potential employer or a person employed in a career of interest. Clients complete these activities outside the group and discuss their experiences during a group meeting.

Structured group interventions are more narrowly focused on a specific issue. The goals of structured groups are limited only by the needs of clients and the imagination of psychologists. For example, structured groups are commonly offered to teach assertiveness skills, resume preparation, time management, study skills, and interviewing skills. Sensitivity groups focus on interpersonal topics such as sexism, racism, and other workplace behaviors.

ORGANIZATIONS

Among the earliest organizations to provide career counseling services were the corporations that emerged with the industrial

revolution. Until recent years the primary focus of these organizations was employee selection and individual career advancement (often referred to as career management).

Corporations began to offer a wider range of services in the late 1980s, and many now offer a program of career counseling services.

Government agencies such as the military, rehabilitation agencies, and correctional facilities also provide career counseling services. Career counseling on military bases tends to emphasize the transition from a military specialty to a civilian occupation. Rehabilitation counseling helps people identify suitable training and employment options so that they can become self-supporting. The focus in correctional and mental health facilities is on helping clients develop work attitudes, behaviors, and marketable skills that will permit them to secure and maintain employment following their discharge.

Many organizations employ staff members (often in their human resources department) to provide career services. Specialists employed as independent contractors may supplement the routine services by providing specialized services such as psychological assessment and work evaluations. Other organizations contract with independent professionals or corporations (e.g., an employee assistance firm) for career counseling services.

Private Practice

Until recently there was little opportunity for career counselors to work exclusively in private practices. Free career counseling is available to most individuals through schools, colleges and universities, services organizations (e.g., B'nai Brith and Bi Brothers and Big Sisters of America) and government agencies (e.g., the United States Employment Service, the Rehabilitation Services Administration, and the military).

However, expansion of the range of career services offered by corporations in the late 1980s increased the opportunities for psychologists in private practice to specialize in career counseling. Organizations often find that contracting with private practitioners is cost-effective because career services can be purchased on an as-needed basis.

CAREER GUIDANCE AND COUNSELING PROGRAMS

What is a Career Guidance and Counseling Program?

It is a comprehensive, developmental program designed to assist individuals in making and implementing informed educational and occupational choices. A career guidance and counseling program develops an individual's competencies in self-knowledge, educational and occupational exploration, and career planning.

WHY IS CAREER GUIDANCE AND COUNSELING KEY TO THE DELIVERY OF VOCATIONAL-TECHNICAL EDUCATION?

Career guidance and counseling programs help individuals acquire the knowledge, skills, and experience necessary to identify options, explore alternatives and succeed in society. These programs better prepare individuals for the changing workplace of the 21st century by:

- teaching labor market changes and complexity of the workplace
- broadening knowledge, skills, and abilities
- improving decision making skill
- increasing self-esteem and motivation
- building interpersonal effectiveness
- maximizing career opportunities
- improving employment marketability and opportunities
- promoting effective job placement
- strengthening employer relations

BENEFITS FROM CAREER GUIDANCE AND COUNSELING PROGRAMS?

Everyone benefits--youth and adults, male and female, disabled, disadvantaged, minorities, limited English proficient, incarcerated, dropouts, single parents, displaced homemakers, teachers, administrators, parents and employers.

WHERE ARE CAREER GUIDANCE AND COUNSELING PROGRAMS OFFERED?

Everywhere--elementary, junior and senior high schools, community colleges, technical institutes, universities, career resource centers, correctional facilities, community-based organizations, human services agencies, community and business organizations, skill clinics, employment and

placement services.

WHERE IS CAREER GUIDANCE AND COUNSELING WORKING?

During 1997-1998, four career guidance programs were selected as exemplary in the following sites:

- Dorchester District Two Career Development Initiatives, Summerville, SC
- La Crosse Central High School Guidance/Career Center, LaCrosse, W
- Lewis and Clark Community College: Career and Employment Services, Godfrey, IL
- Rich South High School: Horizon Program, Richton Park, IL
- Additionally, States implementing the National Career Development Guidelines have many success stories.

WHAT ARE THE KEY COMPONENTS OF SUCCESSFUL CAREER GUIDANCE AND COUNSELING PROGRAMS?

- A planned sequence of activities and experiences to achieve specific competencies such as self-appraisal, decision making, goal setting, and career planning
 - Accountability (outcome oriented) and program improvement (based on results of process/outcome evaluations)
 - Qualified leadership
 - Effective management needed to support comprehensive career guidance programs
 - A team approach where certified counselors are central to the program
 - Adequate facilities, materials, resources
 - Strong professional development activities so counselors can regularly update their professional knowledge and skills
- Different approaches to deliver the program such as outreach, assessment, counseling, curriculum, program and jobplacement, follow-up, consultation, referral

CONCLUSION

Career counseling theory and practice is an effective psychological specialty that has benefited from over 90 years of innovation and experimentation. Meta-analyses of decades of research reveal that career interventions produce measurable benefits. Individual career counseling, structured career counseling groups, career workshops, and career education are all effective interventions that are useful for helping clients explore options and make career decisions. Nevertheless, efforts continue to identify even more effective career counseling interventions that can be used to assist an increasingly diverse clientel.

Psychological testing MCQs

1. The validity of a test refers to:
 - A. ? how norms for the test were developed
 - B. ? whether a test is precise as a tool of measurement
 - C. ? whether the test measures what it purports to measure

D. ? whether a test is consistent in its measurement

Ans:- C

2. Interviews are a primary method of information gathering in:

A. ? clinical and counseling assessment

B. ? all are correct

C. ? forensic assessment

D. ? personnel assessment

Ans:- B

3. Who are the authors of your textbook?

A. ? Eric Cartman and Stan Marsh

B. ? Cohen and Swerdlik

C. ? Davis and Palladino

D. ? Beavis and Butt-head

Ans:- B

4. Which of the following describes a "good" test? A good test

A. ? is valid

B. ? is reliable

C. ? has norms

D. ? all are correct

E. Ans:- D

5. The most significant growth of psychological testing occurred in the:

A. ? 1950s and 1960s

B. ? 1920s and 1930s

C. ? 1910s and 1920s

D. ? 1930s and 1940s

Ans:- A

6. What was the importance of Binet's test of intelligence?

A. ? served as a catalyst for the early growth of psychological measurement

B. ? none are correct

C. ? served as a catalyst for subjective psychological tests (e.g., Rorschach Inkblot test)

D. ? served as a catalyst for personality test development

Ans:- A

7. In personnel assessment, psychological tests are used primarily for the benefit of the:

A. ? examiner

B. ? consumer

C. ? employee

D. ? employer

Ans:- D

8. Which of the following is true of tests used in clinical settings? They are:

A. ? used to choose the best person for the job

B. ? used to measure consumer attitudes

C. ? used as a measure of corporate culture

D. ? used with one individual at a time

Ans:- D

9. By federal law, which of the following types of tests may not be used in schools?

A. ? minimal competency exams

B. ? all may be used in schools

C. ? IQ tests

D. ? Achievement tests

Ans:- B

10. Where should you be able to find detailed information on the development of a particular test, its normative sample, and specific details regarding the studies presented in support of its psychometric soundness?

A. ? in the Standards for Educational and Psychological Tests

B. ? in published reviews of the test

C. ? in test catalogues distributed by the test publisher

D. ? in the test manual

Ans:- D

11. Tests may differ with respect to:

A. ? content

B. ? administration

C. ? all are correct

D. ? format

Ans:- C

12. According to the APA, about how many tests are developed each year?

A. ? 15,000

B. ? 50,000

C. ? 20,000

D. ? 1,000

Ans: C

13. In business and industry, engineering psychologists tend to be most involved with:

A. ? the selection of the most qualified employees for positions

B. ? the prediction of public receptivity to new products

C. ? creating and testing instrumentation for trains

D. ? the design of products that can be used with optimal safety and efficiency

Ans:- A

14. According to the authors of your textbook, which of the following is the most controversial of the 12 assumptions of psychological assessment?

A. ? tests and measurement benefit society

B. ? testing and assessment can be conducted in a fair and unbiased manner

C. ? present day behavior sampling predicts future behavior

D. ? various sources of error are part of the assessment process

Ans:- B

15. During which decade did public concern regarding psychological testing reach its height, resulting in formal investigations of the psychological testing enterprise?

A. ? 1970s

B. ? 1990s

C. ? 1960s

D. ? 1980s

Ans:- C

16. The Standards for Psychological and Educational Tests are most useful for all of the following EXCEPT:

A. ? test publishers

B. ? test-takers

C. ? test users

D. ? test developers

Ans:- B

17. The Thirteenth Mental Measurements Yearbook contains:

A. ? sample personality tests

B. ? sample intelligence tests

C. ? annual reviews of test development

D. ? reviews of psychological tests

Ans:- D

18. Biofeedback equipment has been used in psychological measurement to assess:

A. ? all are correct

B. ? changes in blood level in the brain

C. ? changes in muscular tension

D. ? changes in saliva flow

Ans:- C

19. The field of ergonomics is concerned with the study of:

A. ? the relationship between people and work

B. ? the abuse of ergs in industry and organizations

C. ? aberrant behavior in a recessionary economy

D.? the receptivity of people to new products and services

Ans:- A

20. The factors that influence social behavior and thoughts in certain ways are called–

- A. ?** Independent variables
- B. ?** Confounding variables
- C. ?** Dependent variables
- D. ?** Mediating variables

Ans: d

21. Feeling touchy or hypersensitive following an upsetting experience is a form of–

- A. ?** Imprinting
- B. ?** Habituation
- C. ?** Sensitization
- D. ?** Reflexive Behaviour

Ans : c

22. Because it has the external features associated with the concept of dog, a wolf is perceived as a dog. This is an example of–

- A.** Centration
- B.** Equilibration
- C.** Object Permanence
- D.** Prototype

Ans : d

23. Which of the following is the final destination for much of the brain's information about emotion before action is taken?

- A.** Amygdala
- B.** Anterior cingulate cortex
- C.** Pre-frontal cortex
- D.** Hypothalamus

Ans : c

24. Research shows that the following does not contribute to teacher effectiveness–

- A.** Communication skills
- B.** Use of ICT
- C.** Years of experience
- D.** Use of student feedback

Answer:c

25. Phonemic restoration as we perceive speech in a noisy party is an example of–

- A.** Top-down processing
- B.** Bottom-up processing

- C. Subliminal Perception
- D. Supraliminal perception

Ans : a

26. Cattell Propounded gf-gc theory of intelligence mainly based on—

- A. First order factors of abilities
- B. Second order factors of abilities
- C. Third order factors of abilities
- D. Higher order factors of abilities

Ans : b

27. Which one of the following statements is true?

- A. The 'Global Five' factors in personality refer to the second-order factors of 16 PF, latest edition.
- B. The 'Global Five' factors refer to the factors assessed by the NEO-Five Factor Inventory, latest edition.
- C. The 'Global Five' factors refer to the factors assessed by Goldberg's bipolar adjectives.
- D. The 'Global Five' factors are derived from Eysenck Personality Profiler, latest edition.

Ans : a

28. Which of the following statement best defines maturation?

- A. It is directly based on Social-Cognitive learning.
- B. It is an automatic biological development of the body that naturally unfolds overtime
- C. It does not take place in human beings.
- D. It is the basis of all physical and psychological developments.

Ans : b

29. Brief stress enhances the activity of immune system as evidenced by the action of—

- A. macrophages
- B. T cells
- C. B cells
- D. All these

Ans : d

30. Torrance Tests of Creative Thinking (TTCT) are mainly indexing—

- A. Creative Products
- B. Creative Processes
- C. Creative Personality
- D. Creative Persuasion

Ans : b

31. Which one the scaling method is more likely to yield multidimensional attitude scale?

- A. Guttman Scalogram analysis
- B. Paired comparison method

- C. Equal appearing intervals method
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Ans : d

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- A. in a deeper brain area
- B. in an area of cerebral cortex
- C. and irreversible lesion
- D. in underlying white matter

Ans : b

33. A psychologist was administering a projective test which involved a word association task. She tended to nod and smile every time a plural word was given by the respondent. The following testing bias was seen—

- A. favouritism
- B. test wiseness
- C. selective reinforcement
- D. gender of assessor

Ans : c

34. Four important elements in the theory of signal detection are—

- A. errors, hits, speed and accuracy
- B. speed, accuracy, power and false alarm
- C. hit, miss, correct rejection and false alarm
- D. acuity, efficacy, speed and power

Ans : c

35. Jia had written a list to do her week and work, but incidently left it home while going out for her first activity. Trying to remember the list, Jia remembers what was at the beginning of the list and what was at the end but not those things in the middle. This is an example of—

- A. Encoding specificity effects
- B. Flash bulb memory
- C. Serial position effect
- D. Tip-of-the tongue effect

Ans : c

36. The underlying motivation for acts of aggression is—

- A. intent to harm
- B. anger
- C. retaliation
- D. need to exert control

Ans : d

37. Which of the following is a characteristic of Chomsky's theory?

- A. Development of language is between three and five years of age

- B.** Language development is dependent on the reinforcements received by the child
- C.** Children acquire mistakes in language by observing their parents and others around them
- D.** Children have an innate mental grammar

Ans : d

38. Failure to develop consistent identity results in—

- A.** Inferiority
- B.** Role confusion
- C.** Stagnation
- D.** Social isolation

Ans : b

39. Helpers respond to the needs of a victim because they want to accomplish something rewarding; this may be referred as—

- A.** Negative state – relief model
- B.** Empathic – joy hypothesis
- C.** Empathy – altruism hypothesis
- D.** Pluralistic empathy

Ans : b

40. Which is the correct order of the emergence of following Psycho-Social strengths?

- A.** Love, Fidelity, Wisdom, Care
- B.** Care, Fidelity, Love, Wisdom
- C.** Fidelity, Love, Care, Wisdom
- D.** Care, Fidelity, Wisdom, Love

Ans : c

41. From the following list of tools used by the career guidance counselor, choose the odd one out—

- A.** DAT
- B.** GATB
- C.** DBDA
- D.** SVIB

Ans : d

42. Detecting movement in spite of camouflage is easier for people who are—

- A.** field dependent
- B.** field independent
- C.** both field dependent and field independent
- D.** neither field dependent nor field independent

Ans : b

43. Read the following statement and decide—“If a rat that had previously learned to traverse a maze or a runway to obtain food is placed directly into a non-empty goal box, it will stop traversing the maze or runway on

subsequent trials". What is exemplified?

- A. Latent Learning
- B. Place learning
- C. Response Extinction
- D. Latent Extinction

Ans : d

44. Self is conceptualized in Western and Eastern perspectives on personality, respectively as—

- A. free and deterministic
- B. instinctive and learned
- C. ideal and real
- D. independent and interdependent

Ans : d

45. The centre-surround organization of ganglion cells that enhance contrast at edges in a visual environment are well illustrated by—

- A. Craik bands
- B. Mach bands
- C. Luminance bands
- D. Optic bands

Ans : a

46. The growth needs of ERG theory are represented by various needs in Maslow's model—

- A. Physiological and social needs
- B. Safety needs and esteem needs
- C. Social needs and esteem needs
- D. Esteem needs and self-actualization needs

Ans : d

47. When a Background Interference Procedure was used experimentally, the following findings became apparent?

- A. Field independent persons did better than field dependent persons
- B. Field dependent persons did better than field independent persons
- C. Both field dependent and field independent persons did equally well
- D. BIP enhanced the performance of all subjects

Ans : a

48. People with moderate mental retardation would have an IQ in the range of—

- A. 10 to 19
- B. 35 to 54
- C. 55 to 70
- D. 20 to 34

Ans : b

49. The following is not typically found in a school in a school guidance counsellor's office—

- A. Sand pit
- B. Lie detec
- C. Psychometric tests
- D. Puppets and play dough

Ans : b

50. Emotional intelligence is different from other intelligences in that ...

- A. it is a set of skills
- B. it can be measured using testseasily
- C. the focus is on emotionalreasoning, ability and knowledge
- D. it is a new type of intelligence

Answer:c. the focus is on emotional reasoning, ability and knowledge

51. Emotional intelligence can bestudied through ...

- A. the abilities-focussedapproach
- B. the integrative modelapproach
- C. the mixed model approach
- D. all of the above

Answer:d. all of the above

52. Which of the following describeshow Ability Emotional Intelligence and Trait Emotional Intelligence are different?

- A. The way they are measured
- B. The way they areconceptualized
- C. The way they correlate withother constructs
- D. All of the above

Answer:d. all of the above

53. Incremental validity refers to ...

- A. the additional contribution a new psychological idea makesto existing knowledge
- B. the additional evidence provided by new research
- C. the way research findings arereinterpreted
- D. the way statements arewritten in new tests

Answer:a. the additional contribution a newpsychological idea makes to existingknowledge

54. When predicting intellectual academic performance in medicalstudents, EI showed ...

- A. it is essentially social skills
- B. large incremental validity
- C. no incremental validity
- D. a deterioration in its display

Answer: c. no incremental validity

55. Which of the following is thebest predictor of academic performance?

- A. Trait EI
- B. IQ

- C. Personality
- D. None of these

Answer: b. IQ

56. Mixed Emotional Intelligence models have ...

- A. significant overlap with conscientiousness, extraversion, and self-efficacy
- B. no significant overlap with conscientiousness, extraversion, and self-efficacy
- C. non-significant overlap with conscientiousness, extraversion, and self-efficacy
- D. little overlap with conscientiousness, extraversion, and self-efficacy

Answer: a. significant overlap with conscientiousness, extraversion, and self-efficacy

57. The higher the Trait EI ...

- A. the higher the likelihood of personality disorder
- B. the lower the likelihood of personality disorder
- C. the higher the likelihood of self-harm
- D. the higher the likelihood of harm to others

Answer: b. the lower the likelihood of personality disorder

58. EI is linked to romantic relationship satisfaction because EI may be linked to ...

- A. having better understanding of the partner's emotions
- B. giving the person higher self-esteem
- C. agreeing with the partner all the time
- D. getting what one wants out of the relationship

Answer: a. having better understanding of the partner's emotions

59. Lower EI is likely linked to more aggressive behavior because ...

- A. taking action is more important than expressing emotions
- B. people with lower EI often think of themselves as victims
- C. that is the only way the person knows how to express their displeasure
- D. other's emotions and behaviors are misinterpreted as hostile, and an aggressive response is therefore exhibited

Answer: d. other's emotions and behaviors are misinterpreted as hostile and an aggressive response is therefore exhibited

60. Demonstrating incremental validity of which of the following is tricky?

- A. Intelligence
- B. Ability EI
- C. Trait EI
- D. All of the above

Answer: c. Trait EI

61. Which of the following makes measuring EI challenging?

- A. Whether the scenarios presented should be authentic or hypothetical

- B. Whether conscious, effortful processing or spontaneous processing of emotional materials should be measured
- C. How happy the person is feeling
- D. a and b only

Answer: d. a and b only

62. Ability EI tests are more objective than Trait EI tests because...

- A. they are easier to demonstrate one's own strength
- B. participants tended to rate their own Trait EI as higher than they actually are
- C. they are made up of multiple-choice questions
- D. they cost money

Answer: b. participants tended to rate their own Trait EI as higher than they actually are

63. Dunning-Kruger effect in EI states that ...

- A. a person with low EI is unaware of his or her own low EI
- B. a person with high EI is aware that others have low EI
- C. a person is the best person to estimate his or her own EI
- D. a person's EI is best evaluated by others

Answer: a. a person with low EI is unaware of his or her own low EI

64. Having high EI may not always be adaptive. Why?

- A. Others will likely ignore them
- B. They will have high opinion of themselves
- C. These people are more sensitive to mood manipulation
- D. All of above

Answer: c. These people are more sensitive to mood manipulation

65. Psychology may best be described as the scientific study of _____ and ____.

- A. A Mental state, physical states
- B. B Thoughts, emotions
- C. C Behavior, mental processes
- D. D Mental health, mental illness

Answer: Option [C]

66. Freud believed that adult problems usually:

- A. A Result in Freudian slip
- B. B Result in bad dreams
- C. C Can be traced back to critical stages during childhood
- D. D Are the result of poor behavior

Answer: Option [C]

67. Gestalt theory emphasizes:

- A. A flow of consciousness
- B. B The atoms of thought
- C. C Environmental stimuli
- D. D Our tendency to see pattern

Answer: Option [D]

68. Whereas the _____ asked what happens when an organism does something; the ____ asked how and why.

- A. A functionalist, behaviorist
- B. B structuralist, introspections
- C. C structuralist, functionalist
- D. D functionalist, structuralist

Answer: Option [D]

69. The ____ lobe is to hearing as the occipital lobe is to vision.

- A. Cerebellar
- B. Parietal
- C. Temporal
- D. Frontal

Answer: Option [C]

70. Reflexes are usually controlled by the:

- A. Hypothalamus
- B. Spinal cord
- C. Frontal lobe
- D. Medulla

Answer: Option [B]

71. A part of the brain that sends signals "alert" to higher centers of the brain in response to incoming messages is:

- A. amygdala
- B. Hippocampus
- C. Limbic system
- D. Reticular formation

Answer: Option [D]

72. Perception of the brightness of a color is affected mainly by:

- A. The saturation of light waves
- B. The wavelength of light waves
- C. The purity of light waves
- D. The amplitude of light waves

Answer: Option [A]

73. Which of the following is not a clue for depth perception?

- A. Orientation
- B. Interposition
- C. Reduced clarity
- D. Linear perspective

Answer: Option [A]

74. According to Michel's 'situationist' critique of personality, which of the following statements is true?

- A. Behaviors that express a trait in different settings only correlate weakly
- B. Different measures of the same trait only correlate weakly
- C. Behavior is highly specific to particular situations
- D. All of the above

Answered: D. All of the above

75. Psychophysics is the study of:

- A. Depth perception
- B. Perceptual illness
- C. Movement perception
- D. The psychological perception of physical stimuli

Answer: Option [D]

76. Perceptual constancies are

- A. Likely inborn and not subject to leaning
- B. An aid in perceiving a stable and consistent world
- C. Confusing to an individual rather than helping him determine what really exists
- D. Illusion in which we perceive something that does not correspond to the sensory information

Answer: Option [B]

77. Which of the following is a subdivision of the autonomic nervous system?

- A. Brain and spinal cord
- B. Only sympathetic nervous system
- C. Only the parasympathetic nervous system
- D. Both the sympathetic and Para-sympathetic nervous system

Answer: Option [D]

78. Which of the following approaches to personality is least deterministic?

- A. The humanistic approach
- B. The behavioral approach
- C. The psychoanalytic approach
- D. The social learning approaches

Answer: Option [A]

79. In Freud's theory of personality

- A. The id operates by secondary process
- B. The superego obeys the pleasure principle
- C. The ego obeys the reality principle
- D. The ego operates by primary process thinking

Answer: Option [C]

80. The frustration-aggression hypothesis;

- A. Was developed by social learning theorist
- B. Assumes that frustration produces aggression
- C. Assume that aggression is basic instinct
- D. Claims that frustration and aggression are both instinctive

Answer: Option [B]

81. The James-Lange or body reaction theory of emotion says

- A. You feel emotion then a bodily reaction
- B. Emotions and visceral reactions are simultaneous
- C. The somatic nervous system is the seat of emotion
- D. You react with your body first then you feel emotion

Answer: Option [D]

82. Analysis of avoidance learning suggests that many phobias are acquired through ____ conditioning.

- A. Classical
- B. Operant
- C. Intermittent
- D. Reinforcement

Answer: Option [A]

83. The ability to learn by observing a model or receiving instructions, without reinforcement, is called ____

- A. Contingency
- B. Social learning
- C. Cognitive learning
- D. Instrumental learning

Answer: Option [B]

84. Illnesses that seem to result from an interaction of physical and psychological factors are called:

- A. Somatic
- B. Hysterical
- C. Psychosomatic
- D. Conversion disorder

Answer: Option [C]

85. Which of the following clinical procedures are based, in part on classical conditioning?

- A. Transference
- B. Token economy
- C. Two chair technique
- D. Systematic desensitization

Answer: Option [D]

86. When people are _____ they have lost touch with reality.

- A. Manic
- B. Neurotic Psychotic
- C. Psychopathic

Answer: Option [C]

87. Intelligence can be defined as:

- A. Knowledge of a great many facts
- B. The ability to get good grades in school
- C. All the factors that make one person different from another
- D. The ability to think abstractly and learn from experience

Answer: Option [D]

88. According to Piaget the process of building mental representation of the world through direct interaction with it is:

- A. Adaptation
- B. Conservation
- C. Metacognition
- D. Egocentrism

Answer: Option [A]

89. People who consistently come up with _____ explanations of events are more prone to depression.

- A. dysthemic
- B. Delusional
- C. Pessimistic
- D. Overly optimistic

Answer: Option [C]

90. The leading cause of mental retardation is believed to be:

- A. Inherited traits
- B. Environmental factors
- C. Organic brain syndrome
- D. Fetal alcohol syndrome

Answer: Option [B]

91. An affective disorder in which a person swings from one mood extreme to another is

classified as:

- A. Bipolar
- B. Unipolar
- C. Manic
- D. Depressive

Answer: Option [A]

92. Albert Ellis and Aron Beck are names associated with the _____ therapy approach.

- A. Gestalt
- B. Cognitive
- C. Behavioral
- D. Phenomenological

Answer: Option [B]

93. The process by which a trained professional uses psychological methods to help people with psychological problem is known as:

- A. Psychiatry
- B. Psychoanalysis
- C. Psychosurgery
- D. Psychotherapy

Answer: Option [D]

94. Basic characteristics of tasks that result in social loafing is that they are:

- A. Additive
- B. Negative
- C. Subtractive
- D. Multiplicative

Answer: Option [A]

95. Backward Conditioning occurs when :

- A. CS and US are presented simultaneously
- B. CS is presented first and US is presented before the termination of CS
- C. CS is presented first and US is presented after the termination of CS
- D. US is presented first and CS is presented after the termination of US

Answer: Option [D]

96. The James-Lange theory and the cognitive theory of emotion disagree on whether:

- A. specific brain centers are involved in specific emotions.
- B. bodily feedback determines which emotion is felt.
- C. individuals can judge their emotions accurately.
- D. there is no any biological involvement in human emotions.

Answer: Option [B]

97. Biologically based emotional and behavioral tendencies that are evident in early childhood represent:

- A. Trait
- B. Type

C. Temperament

D. Style

Answer: Option [C]

98. In Jungian theory, the idea that energy is automatically redistributed in the psyche in order to achieve equilibrium or balance depicts:

A. Principle of Equivalence

B. Principle of Synchronicity

C. Principle of Entropy

D. Principle of Opposites

Answer: Option [C]

99. After the recent terrorist attacks in France, a psychologist proposed a study wherein he would interview two hundred French citizens to find whether their attitude towards fate as a consequence of the attack. This study can best be labelled as:

A. attitude change experiment

B. field experiment

C. ex post facto study

D. psychometric study

Answer: Option [C]

100. Which of the following is correct while comparing classical and operant conditioning ?

A. Operant conditioning takes place before reinforcement while classical conditioning takes place after reinforcement.

B. Operant conditioning takes place as a result of some voluntary action while classical conditioning takes place without choice.

C. In operant conditioning, response is elicited while in classical conditioning it is emitted.

D. In operant conditioning magnitude of the response is the index of conditioning while in classical conditioning it is the rate of response.

Answer: Option [B]

101. Words learned under water are recalled:

A Better on land than under water

B Better above land (sky) than on land

C Better above land (sky) than underwater

D Better under water than on land

Answer: Option [D]

102 Which of the following sequence is correct ?

A. Oral phase ® Anal phase ® Latency ® Phallic ® Genital

B. Anal ® Oral ® Phallic ® Latency ® Genital

C. Oral ® Anal ® Phallic ® Latency ® Genital

D. Oral ® Phallic ® Anal ® Genital ® Latency

Answer: Option [C]

103. Which memory is the result of instrumental/motor learning processes ?

A. Semantic memory

B. Episodic memory

- C. Sensory memory
- D. Procedural memory

Answer: Option [D]

103 In which lobe of the cerebral cortex, the primary olfactory cortex lies ?

- A. Frontal lobe
- B. Temporal lobe
- C. Occipital lobe
- D. Parietal lobe

Answer: Option [B]

104 "Factor Analysis is used as a means of confirming a structured model than as a means of discovering a structural model". This is true of which theory of intelligence ?

- A. Spearman
- B. Thurstone
- C. Jensen
- D. Guilford

Answer: Option [D]

105 What is the role of positive and negative reinforcement ?

- A. To increase the likelihood that responses preceding both will be repeated.
- B. To decrease the likelihood that responses preceding negative reinforcement will be repeated.
- C. To increase the likelihood that responses preceding only positive reinforcement will be repeated.
- D. To ensure that there are no negative consequences following the behaviour.

Answer: Option [A]

106 While forming a concept one chooses to take one hypothesis and selects many of its features to quickly form the concept at once :

- A. Successive scanning
- B. Conservative focusing
- C. Focus gambling
- D. Simultaneous scanning

Answer: Option [C]

107 What is the correct sequence an auditory stimulus takes to reach the primary auditory cortex ?

- A. Cochlear nuclei - Superior olive - Inferior colliculus - Medial geniculate nucleus
- B. Cochlear nuclei - Inferior colliculus - Superior olive - Medial geniculate nucleus
- C. Superior olive - Cochlear nuclei - Inferior colliculus - Medial geniculate nucleus
- D. Medial geniculate nucleus - Inferior colliculus - Superior olive - Cochlear nucleus

Answer: Option [A]

108 In the above context, which one of the following correlation should be computed to obtain item-remainder correlations?

- A. Point biserial correlation
- B. Phi-coefficient

- C. Rank difference correlation
- D. Tetrachoric correlation

Answer: Option [A]

109 Which one of the following statement would be true in the above context?

- A. Kuder - Richardson reliability coefficient would also be .90, but the split-half reliability coefficient may differ from .90.
- B. Split-half reliability coefficient would also be .90, but the Kuder - Richardson reliability coefficient may differ from .90.
- C. Both Kuder - Richardson reliability coefficient and split-half reliability coefficient would be .90.
- D. The correlation between odd and even parts of the test would be .90.

Answer: Option [A]

110. To obtain inter-item correlations, which one of the following correlation coefficient should be used in the above analysis?

- A. Biserial correlation
- B. Point biserial correlation
- C. Phi-coefficient
- D. Rank difference correlation

Answer: Option [C]

110 What is the expected Cronbach alpha for the short versions, referred to in the paragraph?

- A. 0.45
- B. 0.67
- C. 0.82
- D. 0.90

Answer: Option [C]

111. Which one of the following conclusions can be drawn from the data provided above? The new Abstract Thinking Test has:

- A. Satisfactory convergent validity
- B. Satisfactory divergent validity
- C. Satisfactory concurrent validity
- D. Unsatisfactory concurrent validity

Answer: Option [D]

112. The factors that influence social behavior and thoughts in certain ways are called:

- A. Independent variables
- B. Confounding variables
- C. Dependent variables
- D. Mediating variables

Answer: Option [D]

113. Phonemic restoration as we perceive speech in a noisy party is an example of :

- A. Top-down processing
- B. Bottom-up processing
- C. Subliminal perception

D. Supraliminal perception

Answer: Option [A]

114. Feeling touchy or hypersensitive following an upsetting experience is a form of :

- A. Imprinting**
- B. Habituation**
- C. Sensitization**
- D. Reflexive Behavior**

Answer: Option [C]

115. Because it has the external features associated with the concept of dog, a wolf is perceived as a dog. This is an example of:

- A. Centration**
- B. Equilibration**
- C. Object permanence**
- D. Prototype**

Answer: Option [D]

116. Which of the following is the final destination for much of the brain's information about emotion before action is taken?

- A. Amygdala**
- B. Anterior cingulate cortex**
- C. Pre-frontal cortex**
- D. Hypothalamus**

Answer: Option [C]

117. Cattell propounded gf-gc theory of intelligence mainly based on :

- A. First order factors of abilities**
- B. Second order factors of abilities**
- C. Third order factors of abilities**
- D. Higher order factors of abilities**

Answer: Option [B]

118. Which one of the following statements is true?

- A. The 'Global Five' factors in personality refer to the second-order factors of 16 PF, latest edition.**
- B. The 'Global Five' factors refer to the factors assessed by the NEO-Five Factor Inventory, latest edition.**
- C. The 'Global Five' factors refer to the factors assessed by Goldberg's bipolar adjectives.**
- D. The 'Global Five' factors are derived from Eysenck Personality Profiler, latest edition.**

Answer: Option [A]

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- B.** speed, accuracy, power and false alarm
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- D.** Tip-of-the tongue effect

Answer: Option [C]

122.Torrance Tests of Creative Thinking (TTCT) are mainly indexing:

- A.** Creative Products
- B.** Creative Processes
- C.** Creative Personality
- D.** Creative Persuasion

Answer: Option [B]

123.Which one of the scaling methods is more likely to yield multidimensional attitude scale?

- A.** Guttman scalogram analysis
- B.** Paired comparison method
- C.** Equal appearing intervals method
- D.** Method of summated rating

Answer: Option [D]

124.When is aspiration a method of choice to make a lesion?

- A.** in a deeper brain area
- B.** in an area of cerebral cortex
- C.** an irreversible lesion
- D.** in underlying white matter

Answer: Option [B]

125.A psychologist was administering a projective test which involved a word association task. She tended to nod and smile every time a plural word was given by the respondent. The following testing bias was seen:

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- C.** selective reinforcement
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- B. Language development is dependent on the reinforcements received by the child
- C. Children acquire mistakes in language by observing their parents and others around them
- D. Children have an innate mental grammar

Answer: Option [D]

127. The Centre-surround organization of ganglion cells that enhance contrast at edges in a visual environment is well illustrated by:

- A. Craik bands
- B. Mach bands
- C. Luminance bands
- D. Optic bands

Answer: Option [A]

128. The growth needs of ERG theory are represented by various needs in Maslow's model:

- A. Physiological and social needs
- B. Safety needs and esteem needs
- C. Social needs and esteem needs
- D. Esteem needs and self-actualization needs

Answer: Option [D]

129. In Bloom's taxonomy of educational objectives, the following appear in ascending order :

- A. Remember ® Understand ® Apply ® Analyze
- B. Apply ® Analyze ® Understand ® Remember
- C. Understand ® Apply ® Remember ® Analyze
- D. Analyze ® Remember ® Apply ® Understand

Answer: Option [A]

130. Helpers respond to the needs of a victim because they want to accomplish something rewarding; this may be referred to as:

- A. Negative state-relief model
- B. Empathic-joy hypothesis
- C. Empathy-altruism hypothesis
- D. Pluralistic empathy

Answer: Option [B]

131. Which is the correct order of the emergence of the following Psycho-Social strengths ?

- A. Love, Fidelity, Wisdom, Care
- B. Care, Fidelity, Love, Wisdom
- C. Fidelity, Love, Care, Wisdom
- D. Care, Fidelity, Wisdom, Love

Answer: Option [C]

132. Detecting movement in spite of camouflage is easier for people who are :

- A. field dependent
- B. field independent
- C. both field dependent and field independent

D. neither field dependent nor field independent

Answer: Option [B]

133. Self is conceptualized in Western and Eastern perspectives on personality, respectively, as:

A. free and deterministic

B. instinctive and learned

C. ideal and real

D. independent and interdependent

Answer: Option [D]

134. When a Background Interference Procedure was used experimentally, the following findings became apparent?

A. Field independent person did better than field dependent persons

B. Field dependent persons did better than field independent persons

C. Both field dependent and field independent persons did equally well

D. BIP enhanced the performance of all subjects

Answer: Option [A]

135. People with moderate mental retardation would have an IQ in the range of :

A. 10 to 19

B. 35 to 54

C. 55 to 70

D. 20 to 34

Answer: Option [B]

136. The following is not typically found in a school guidance counsellor's office :

A. Sand pit

B. Lie detector

C. Psychometric tests

D. Puppets and play dough

Answer: Option [B]

137. According to Piaget the children are able to grasp the concept of object permanence and conservation in:

A. Sensory motor stage

B. Pre-operational stage

C. Concrete operational stage

D. Formal operations stage

Answer: Option []

138. Which one of the following design is used in the above research ?

A. Multigroup design with single I.V.

B. 2³ factorial design

C. 2³ mixed factorial design

D. Repeated measures design

Answer: Option [B]

139. Which one of the following statements is true in the context of the above study?

- A. The assumption of homogeneity of variance was satisfied.
- B. The assumption of homogeneity of variance was not satisfied.
- C. The correction for heterogeneity of variance was required.
- D. The data are insufficient to evaluate the assumption of homogeneity of variance.

Answer: Option [A]

140. On the basis of the information provided about the main effect of A, it can be concluded that:

- A. Interpolated learning had no effect on the recall of A.
- B. Interpolated learning caused retroactive interference.
- C. Interpolated learning caused retroactive facilitation.
- D. Either retroactive interference or retroactive facilitation has occurred.

Answer: Option [D]

141. What would be the degrees of freedom for the numerator and denominator of the F-ratio defined as MSA_{3B}/MSE ?

- A. 1 and 96 respectively
- B. 1 and 98 respectively
- C. 2 and 97 respectively
- D. 3 and 96 respectively

Answer: Option [A]

142. A procedure that establishes a sequence of responses which lead to a reward following the final response and then working backwards is called

- A. Shaping
- B. Stimulus control
- C. Chaining
- D. Stimulus generalization

Answer: Option [C]

143. In a study on scaling of attitude items, eleven statements were included. What would be the number of pairs of attitude statements?

- A. 21
- B. 55
- C. 110
- D. 121

Answer: Option [B]

144. Who first attempted to describe personality traits in terms of Lexicon descriptors?

- A. Ross Stagner
- B. Allport and Osbert
- C. R.B. Cattell
- D. Costa and McCrae

Answer: Option [B]

145. Which of the following is incorrectly arranged?

- A. Encoding – retrieval – storage
- B. Encoding – storage – retrieval
- C. Storage – encoding – retrieval
- D. Retrieval – encoding – storage

Answer: Option [B]

146. Which one of the following does not contribute to memory?

- A. Interesting / disinteresting learning material
- B. Goal behind learning
- C. Gender
- D. Some rest after learning

Answer: Option [C]

147. In terms of efficiency in scanning information, which one of the following strategies is considered to be the best?

- A. Conservative focusing
- B. Focus gambling
- C. Simultaneous scanning
- D. Successive scanning

Answer: Option [C]

148. According to Master and Johnson following is the correct sequence of human sexual response:

- A. Excitement → Orgasm → Plateau → Resolution
- B. Excitement → Plateau → Orgasm → Resolution
- C. Excitement → Arousal → Orgasm → Resolution
- D. Arousal → Excitement → Orgasm → Resolution

Answer: Option [B]

149. In graphical representations showing stress levels on X axis and performance on Y axis, best performance can be expected at

- A. Lower end of X axis
- B. Middle portion of X axis
- C. Higher end of X axis
- D. None of the above

Answer: Option [B]

150. Lesions of the ventromedial nuclei in the hypothalamus produce

- A. Anorexia
- B. Obesity
- C. Low level of Leptin
- D. Hyperinsulinemia

Answer: Option [B]

151. When the action potential reaches the end of the axon terminals, it causes the release of

- A. An electric spark that sets off the next neuron
- B. Positively charged ions that excite the next cell

- C. Negatively charged ions that inhibit the next cell.
- D. Neurotransmitters that excite or inhibit the next cell.

Answer: Option [D]

152. AIDS attack a number of very different population; young gay men, intravenous drug users, hemophiliacs, Haitians, infants and recipients of blood transfusion, but commonly among them is the decrease in T lymphocytes, so it is an example of

- A. Inductive reasoning
- B. Deductive reasoning
- C. Analogical reasoning
- D. Syllogism

Answer: Option [A]

153. Muller-Lyer illusion is likely to occur more in cultures characterized by

- A. People living in rectangular and square buildings
- B. People living in buildings which are round and have few corners
- C. People living in open spaces
- D. People living in caves

Answer: Option [A]

154. One prominent class of theorists of deductive reasoning believe that deduction depends on _____ of inference akin to those of _____.

- A. informal rules; logical calculus
- B. formal rules; analytical calculus
- C. procedural rules; logical calculus
- D. formal rules; logical calculus

Answer: Option [D]

155. What is the correct sequence of products in Guilford's Struct of Intellect Model (SOI) ?

- A. Unit → Class → System → Relations → Implication → Transformation
- B. Class → Unit → Systems → Relation → Transformation → Implication
- C. Unit → Class → Relation → System → Transformation → Implication
- D. Unit → Relation → Class → System → Transformation → Implication

Answer: Option [C]

156. The light passes through the eye in which of the following sequence ?

- A. Cornea, Pupil, Lens, Retina
- B. Cornea, Lens, Pupil, Retina
- C. Lens, Cornea, Pupil, Retina
- D. Pupil, Cornea, Lens, Retina

Answer: Option [A]

157. Which one of the following statement is true in the context of item analysis?

- A. Item-total correlation = Item-remainder correlation
- B. Item-total correlation is greater than or equal to item-remainder correlation.
- C. Item-total correlation is smaller than or equal to item-remainder correlation.
- D. Item-total correlation cannot be negative.

Answer: Option [B]

159. The difference in images in the two eyes is greater for objects that are close and smaller for distant objects is an example of

- A.** Binocular Disparity
- B.** Convergence
- C.** Accommodation
- D.** Relative Size

Answer: Option [A]

160. Shaping in instrumental conditioning means

- A.** Teaching a complex sequence of behaviors by first shaping the final response in the sequence and then working backwards
- B.** A continuous reinforcement schedule is used for establishing new behaviors.
- C.** It involves reinforcing successive approximations of the final desired behavior.
- D.** Consistent occurrence of a behaviour in the presence of discriminative stimulus.

Answer: Option [C]

161. According to Trichromatic theory of colour vision, which of the following are the three types of cones ?

- A.** Red, Yellow and Blue
- B.** Red, Blue and Green
- C.** Yellow, Blue and Green
- D.** Yellow, Red and Blue

Answer: Option [B]

162. Which one of the following conclusion can be drawn on the basis of the above study ?

- A.** The researcher's hypothesis has been accepted.
- B.** The researcher's hypothesis has been rejected.
- C.** The researcher's hypothesis has been partially accepted.
- D.** Inadequate data to evaluate researcher's hypothesis.

Answer: Option [B]

163. Amit met with an accident and later turned into impulsive, irresponsible and less concerned with the consequences of his actions. He must have suffered damage in

- A.** Parietal lobe
- B.** Frontal lobe
- C.** Occipital lobe
- D.** Temporal lobe

Answer: Option [B]

164. Effective teaching may include conceptual scaffolding, which is best described by the following statement:

- A.** introducing practice sessions after every module.
- B.** gradually fading support as student proficiency increases.
- C.** punishing student for incorrect answers.
- D.** encouraging brighter students to help weaker students.

Answer: Option [B]

165. A social worker, appointed to assist the psychiatrist, used to administer and interpret Rorschach test. This is an

- A. ethically incorrect practice
- B. ethically correct practice
- C. ethically correct practice provided the results are used only for diagnostic purpose.
- D. ethically correct practice provided the results are kept confidential and are used only for diagnostic purpose.

Answer: Option [A]

166. The following instrument can not be utilized in the measurement of emotions:

- A. Sphygmomanometer meter
- B. Galvanic skin response
- C. Digital thermometer
- D. Pupillary measurement camera

Answer: Option [C]

167. Arrange in sequence the stage of personality development according to Rollo May

- A. Innocence → ordinary consciousness of self → rebellion → creative consciousness of self
- B. Innocence → rebellion → ordinary consciousness of self → creative consciousness of self
- C. Ordinary consciousness of self → innocence → rebellion → creative consciousness of self
- D. Rebellion → innocence → ordinary consciousness of self → creative consciousness of self

Answer: Option [B]

168. The rapid change in performance as the size of reinforcement is varied is called

- A. Crispi effect
- B. Disequilibrium hypothesis
- C. Premack principal
- D. Programmed learning

Answer: Option [A]

169. In Solomon Asch's study on conformity, subjects conformed to the Group approximately what percent of time

- A. 25%
- B. 35%
- C. 45%
- D. over 50%

Answer: Option [B]

170. Perceived fairness of the amount and rewards among individuals refers to __ while perceived fairness of the ways used for rewards and pays refers to _____.

- A. Organizational justice, Distributive justice
- B. Equity, Organizational justice
- C. Distributive justice; Procedural justice
- D. Procedural justice; Distributive justice

Answer: Option [C]

171. The concept of _____ is vital in the understanding of fractional anticipated goal response

- A. Drive stimulus reduction
- B. Reactive Inhibition
- C. Secondary Reinforcement
- D. Conditioned Inhibition

Answer: Option [C]

172. Which of the following identity status describes the individual who has been exploring but not yet committed to self-chosen values and goals?

- A. Identity achievement
- B. Identity foreclosure
- C. Identity diffusion
- D. Identity moratorium

Answer: Option [D]

173. Scientific study of Creativity is considered to be started by

- A. Galton
- B. Guilford
- C. Torrance
- D. Mednick

Answer: Option [B]

174. Culture exerts strong effect on memory through the operation of cultural schema. One's memory is influenced by learning in

- A. Own culture effect
- B. Culture effect due to enculturation
- C. Acculturation effect
- D. Socialization effect

Answer: Option [A]

175. Evolutionary Social Psychology Research seeks to investigate :

- A. Changes in human behavior
- B. Seeks to investigate the potential role of genetic factors on social behavior
- C. Interrelationships between people of two groups of different social environment
- D. Focuses on individual's behavior.

Answer: Option [B]

176. Which one of the following is the right explanation of flash bulb memory?

- A. New, important, helpful social events
- B. Unspecific, important, common events
- C. Specific, surprising, unimportant events
- D. Unspecific, important, common events

Answer: Option [A]

178. Which of the following sequences is correct with respect to effective teaching ?

A. Match student's level → specify learning goals → emphasize self comparison → suggest improvements and model problem solving.

B. Specify learning goals → emphasize self-comparison → suggest improvements and model

problem solving → match student's level.

C. Suggest improvements and model problem solving → match student's level → specify learning goals → emphasize self-comparison

D. Emphasize self-comparison → match student's level → specify learning goals → suggest improvements and model problem solving.

Answer: Option [A]

179. Sleep disorders can be categorized as

A. Paraphilias and Dysfunctions

B. Insomnia and Hypersomnia

C. Parasomnias and Dyssomnias

D. Serotonergic and Dopaminergic

Answer: Option [C]

180. Which is the correct sequence of the stages involved in creative thinking ?

A. Preparation; orientation; illumination; incubation; verification

B. Preparation; incubation; illumination; orientation; verification

C. Orientation; preparation; incubation; illumination; verification

D. Orientation; preparation; illumination; incubation; verification

Answer: Option [C]

181. Selective attention in vision and audition respectively have been dubbed as

A. 'optic' and 'haptic'

B. 'spotlight' and 'gateway'

C. 'spatial' and 'acoustic'

D. 'central' and 'peripheral'

Answer: Option [B]

182. Which is not the part of "on the job training" ?

A. Orientation training

B. Job instruction training

C. Role playing

D. Apprentice training

Answer: Option [C]

183. "Pygmalion effect" in educational settings suggests :

A. exceptional progress by student as a result of high teacher expectations.

B. biases creeping into summative assessment

C. authenticity factors in classroom assessment.

D. influences on curricular structure.

Answer: Option [A]

184. Which of the following is not a diagnosable sleep disorder :

A. Somnambulism

B. Somniloquy

C. Sleep terror

D. Insomnia

Answer: Option [B]

185. field experiment at the Bronx Zoo illustrated the potential importance of ____ indicating that an individual has legitimate authority. Fill in the blank from given below.

- A. Gender
- B. Uniforms
- C. Age
- D. An authoritarian personality

Answer: Option [D]

189. Thinking is a complex set of collaborations between _____ and ____ representations and processes.

- A. Linguistic; semantic
- B. Linguistic; verbal
- C. Semantic; non-linguistic
- D. Linguistic; non-linguistic

Answer: Option [D]

190. Signal detection depends upon

- A. motivation and expectations
- B. signal intensity and noise
- C. sensitivity and response criterion
- D. absolute and relative thresholds

Answer: Option [C]

191. Which of the following does not present with symptoms of mental retardation ?

- A. Cri du chat syndrome
- B. Down's syndrome
- C. Fugue
- D. Trisomy-21

Answer: Option [C]

192. Therapist suggested to Sunil that while trying to give up the habit of washing hands unnecessarily, he should wear a rubber band around his wrist and snap it everytime he feels like washing his hands. What therapy he is using?

- A. Systematic desensitization
- B. Aversion therapy
- C. Flooding
- D. Modelling

Answer: Option [B]

193. The need for _____ produces active, controlling social behavior while need for ____ produces more passive, less controlling social behavior.

- A. affiliation; self-esteem
- B. confidence; intimacy
- C. affiliation; intimacy
- D. intimacy; affiliation

Answer: Option [C]

194. According to Triarchic Theory of Intelligence, arrange the correct functional sequence of meta components

- A.** Identification of problem → defining the givens, goals & obstacles → choosing appropriate strategy → selection of lower order processes → selection of mental representation → allocation of mental resources → monitoring → evaluation.
- B.** Identification of problem → defining the givens, goals & obstacles → selection of lower order processes → choosing appropriate strategy → selecting a mental representation → allocating mental resources → monitoring → evaluation.
- C.** Identification of problem → choosing appropriate strategy → defining givens, goals and obstacles → allocating mental resources → monitoring → selecting mental representation → evaluation
- D.** Defining the givens, goals and obstacles → identification of problem → selection of lower order processes → choosing appropriate strategy → selecting a mental representation → allocating mental resources → monitoring → evaluation

Answer: Option [B]

195. Which is the correct sequence of the stages involved in creative thinking ?

- A.** Preparation; orientation; illumination; incubation; verification
- B.** Preparation; incubation; illumination; orientation; verification
- C.** Orientation; preparation; incubation; illumination; verification
- D.** Orientation; preparation; illumination; incubation; verification

Answer: Option [C]

196. In which one of the following scaling methods, Law of Comparative Judgement is used clearly while computing scale values?

- A.** Summated ratings
- B.** Equal appearing intervals
- C.** JND scales
- D.** Paired Comparison

Answer: Option [D]

197. The model of memory most frequently cited consists of Short Term Memory (STM) which serve(s) as gateway to Long Term Memory (LTM). This model was propounded by

- A.** Ebbinghaus
- B.** Craik and Lockhart
- C.** Tulving
- D.** Atkinson and Shiffring

Answer: Option [D]

198. The phenomenon of clinging to one's initial conceptions after the basis on which they were formed and had been discredited refers to :

- A.** Belief bias
- B.** Belief perseverance
- C.** Over confidence
- D.** Framing decisions

Answer: Option [B]

199. Mechanistic and Cognitive approaches to motivation differ in the extent to which ___ are

invoked to account for the initiation, direction, intensity and persistence of goal directed behaviour.

- A. Dynamic traits
- B. Higher mental processes
- C. Drives
- D. Instincts

Answer: Option [B]

200. Which of the following is the term for describing a child's one word utterances ?

- A. Over extensions
- B. Under extensions
- C. Holophrases
- D. Telegraphic speech

Answer: Option [C]

201. What would be the multiple correlation between the job efficiency and the three predictors (M.B.A. marks, selection test scores, and the evaluations scores at the end of inhouse training) ?

- A. 0.50
- B. 0.65
- C. 0.75
- D. Inadequate data

Answer: Option [C]

202. The b coefficient obtained in multiple regression is

- A. Partial correlation coefficient
- B. Correlation coefficient
- C. Regression coefficient
- D. Partial regression coefficient

Answer: Option [D]

203. Which one of the following conclusion can be drawn on the basis of above paragraph ?

- A. All the four predictors (M.B.A. marks, selection test scores, evaluation scores at the end of inhouse training and communications skills) are uncorrelated with each other.
- B. Out of the four predictors, at least some are correlated with each other
- C. Communication skills scores are uncorrelated with other predictors.
- D. The four predictors theoretically appear to be correlated, but we cannot infer about their intercorrelations from the data provided.

Answer: Option [B]

204. Words learned under water are recalled :

- A. Better on land than under water
- B. Better above land (sky) than on land
- C. Better above land (sky) than underwater
- D. Better under water than on land

Answer: Option [D]

205. Amit met with an accident and later turned into impulsive, irresponsible and less concerned with the consequences of his actions. He must have suffered damage in

- A. Parietal lobe

- B. Frontal lobe
 - C. Occipital lobe
 - D. Temporal lobe
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- A. ethically incorrect practice
- B. ethically correct practice
- C. ethically correct practice provided the results are used only for diagnostic purpose.
- D. ethically correct practice provided the results are kept confidential and are used only for diagnostic purpose.

Answer: Option [A]

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- A. Innocence → ordinary consciousness of self → rebellion → creative consciousness of self
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- C. Ordinary consciousness of self → _____ .innocence → rebellion → creative consciousness of self
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213.Sleep disorders can be categorized as

- A. Paraphilias and Dysfunctions
- B. Insomnia and Hypersomnia
- C. Parasomnias and Dyssomnias
- D. Serotonergic and Dopaminergic

Answer: Option [C]

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- A. Preparation; orientation; illumination; incubation; verification
- B. Preparation; incubation; illumination; orientation; verification
- C. Orientation; preparation; incubation; illumination; verification
- D. Orientation; preparation; illumination; incubation; verification

Answer: Option [C]

215.Selective attention in vision and audition respectively have been dubbed as

- A. 'optic' and 'haptic'
- B. 'spotlight' and 'gateway'
- C. 'spatial' and 'acoustic'
- D. 'central' and 'peripheral'

Answer: Option [B]

216.Job satisfaction is enhanced by tasks that are:

- A. Very easy to accomplish
- B. Overwhelming and rewarding
- C. Unrelated to one's personal needs
- D. Challenging but not overwhelming

Answer: Option [D]

217.Piaget's stage for infancy is:

- A. Formal operation
- B. Preoperational thought
- C. Sensory motor thoughts
- D. Concrete operations

Answer: Option [C]

218.When a researcher tests several groups of people at the same time each group at a different

age, he is conducting a(n) _____ study.

- A. Sequential
- B. Cross-sectional
- C. Longitudinal
- D. Observational

Answer: Option [B]

219. An individual becomes a member of social group through the process of:

- A. Aging
- B. Learning
- C. Maturation
- D. Socialization

Answer: Option [D]

220. The first two weeks of life are referred to as:

- A. Early childhood
- B. The neonatal period
- C. The period of infancy
- D. The preoperational stage

Answer: Option [B]

221. It would be more accurate to say that maturation:

- A. Can be delayed by illness or poor nutrition
- B. Is dramatically accelerated by good nutrition
- C. Is not affected by any environmental factors because it is genetic
- D. Is greatly accelerated by good health care and delayed by illness

Answer: Option [D]

222. Which of the following is part of the psychosocial domain?

- A. Memory
- B. Judgment
- C. Motor skills
- D. Style of behaving

Answer: Option [D]

223. The stage of prenatal development during which the developing organism is most vulnerable to injury is the:

- A. Embryonic stage
- B. Fetal stage
- C. Germinal stage
- D. Zygotic stage

Answer: Option [A]

224. The current Stanford-Binet Intelligence Test is descended from the test developed by Binet and Simon:

- A. In early 1600s
- B. In early 1800s

- C. In early 1900s
 - D. None of the above
- Answer: In early 1900s

225.The capacity to learn and adapt to the requirements for survival in one's culture is called:

- A. Learning
- B. Emotion
- C. Intelligence
- D. Abstraction

Answer: Intelligence

226.Who told that mental functioning involves two types of abilities – an associative ability and a cognitive ability?

- A. A. R. Jensen
- B. E. B. Titchener
- C. J. B. Watson
- D. Wilhelm Wundt

Answer: A. R. Jensen

227.Who viewed intelligence as an attribute of the person like any other attribute such as blood pressure and temperature etc?

- A. A. R. Jensen
- B. Carl Spearman
- C. R. B. Cattell
- D. None of the above

Answer: A. R. Jensen

228.According to Spearman, the capacity for activities like reading a novel, speaking fluently, planning the train route from a map etc. involve:

- A. Primary mental ability
- B. The manifestation of specific intelligence in greater degree
- C. Abstract level of intelligence
- D. The manifestation of general intelligence in greater degree

Answer: The manifestation of general intelligence in greater degree

229.Who introduced the term "Intelligence Quotient" (I.Q.)?

- A. William Stern
- B. R. B. Cattell
- C. A. R. Jensen
- D. E. L. Thorndike

Answer: William Stern

230.The term "intelligence" is derived from a Latin word, framed by Cicero to translate a Greek word used by Aristotle to include:

- A. Specific effective processes
- B. All effective processes
- C. Specific cognitive processes
- D. All cognitive processes

Answer: All cognitive processes

231. The simultaneous existence of two opposed emotions, motivations or attitudes e.g. love-hate, approach-avoidance is called:

- A. Rationalization
- B. Narcissism
- C. Instinct
- D. Ambivalence

Answer: Ambivalence

232. The proverbial story of milkmaid's daughter is an illustration of:

- A. Fantasy
- B. Creative Thinking
- C. Divergent Thinking
- D. Dream

Answer: Fantasy

233. If we start visualising that we will go to heaven and start experiencing all the pleasures therein, this would be:

- A. Imagination
- B. Daydreaming
- C. Dream
- D. None of the above

Answer: Day-dreaming

234. The difference between day-dreams and fantasy is that the former are much more organised and relate to the:

- A. Subconscious mental activity of the individual
- B. Unconscious mental activity of the individual
- C. Conscious mental activity of the individual
- D. Both conscious and unconscious activities of the individual

Answer: Conscious mental activity of the individual

235. Delusions can be classified into two types and these are:

- A. Transitory and permanent
- B. Direct and indirect
- C. Grandeur and persecution
- D. None of the above

Answer: Grandeur and persecution

236. Some delusions are there which are brief or fleeting. These are called:

- A. Delusion of Persecution
- B. Chronic Delusions
- C. Delusion of Grandeur
- D. Transient Delusions

Answer: Transient Delusions

237. Some delusions are there which are very elaborate and many completely engulf the individual.

These are called:

- A. Chronic or Systematic Delusions
- B. Transient Delusions
- C. Delusion of Grandeur
- D. Delusion of Persecution

Answer: Chronic or Systematic Delusions

238. "Sometimes an individual feels that he is being harassed, persecuted and plotted against by everyone. He is obsessed with the idea that everybody around is out to get him, harm him, kill him and he is a victim of domestic, national and international conspiracies". This is an example of:

- A. Delusion of Persecution
- B. Systematic Delusions
- C. Transient Delusions
- D. Delusion of Grandeur

Answer: Delusion of Persecution

239. The ideas which were interfering with the solution of the problem tend to fade in:

- A. Preparation Period
- B. Evaluation Period
- C. Incubation Period
- D. None of the above

Answer: Incubation Period

240. Hypochondriacal delusions are concerned with an excessive preoccupation with imaginary:

- A. Physical or Mental disease
- B. Psychoses
- C. Physical diseases
- D. Mental diseases

Answer: Physical or Mental disease

241. Self-condemnatory delusions generally reflect a need for:

- A. Affection
- B. Reward
- C. Punishment
- D. None of the above

Answer: Punishment

242. Hypochondriasis is usually interpreted as an escape from life difficulties:

- A. By a flight into coma stage
- B. By a flight into disease
- C. By a flight into unconscious stage
- D. By a flight into dream

Answer: By a flight into disease

243. Jean Piaget was a/an:

- A. Russian Psychologist
- B. English Psychologist
- C. Swiss Psychologist

D. German Psychologist
Answer: Swiss Psychologist

244. Jean Piaget used the term “Schemata” to refer to the cognitive structures underlying organized patterns of:

- A. Behavior**
- B. Experience**
- C. Temperament**
- D. None of the above**

Answer: Behavior

245. In which development stage, according to Piaget, “Object permanence” develops?

- A. Concrete operation period**
- B. Formal operation period**
- C. Preoperational Period**
- D. Sensorimotor Period**

Answer: Sensorimotor Period

246. Piaget speaks of the “plane of action” in the sensorimotor phase preceding and being essential for the later development of the:

- A. Plane of thought**
- B. Personality**
- C. Concept formation**
- D. Image**

Answer: Plane of thought

247. In which substage of Sensorimotor Period, the infant repeats and modifies actions which initially may have occurred by chance and which the child finds to be satisfying or pleasurable?

- A. Primary circular Reaction**
- B. Coordination of secondary schemata**
- C. Tertiary circular Reaction**
- D. None of the above**

Answer: Primary circular Reaction

248. Children actively use trial-and-error methods to learn more about the properties of objects in the developmental stage of:

- A. Coordination of secondary schemata**
- B. Primary circular Reactions**
- C. Tertiary circular Reactions**
- D. Secondary circular Reactions**

Answer: Tertiary circular Reactions

249. The major characteristic of the preoperational phase is the development of systems of representation, such as language, which Piaget calls the:

- A. Symbolic function**
- B. Explicit function**
- C. Communicative cues**
- D. Implicit function**

Answer: Symbolic function

250. The child's habit of attending to one salient aspect of a problem neglecting other ones, thus distorting reasoning is known as:

- A. Centration
- B. Syncretism
- C. Egocentrism
- D. Transductive reasoning

Answer: Centration

251. The child's cognitive structure reaches maturity during:

- A. The period of formal operations
 - B. Concrete operational period
 - C. Sensorimotor period
 - D. Preoperational period
- Answer: The period of formal operations

252. When we just start completely agreeing with some deduced results or principles and try to apply to particular cases, it is known as:

- A. Convergent Thinking
- B. Inductive Reasoning
- C. Divergent Thinking
- D. Deductive Reasoning

Answer: Deductive Reasoning

253. The concept of an automobile is:

- A. A haphazard concept
 - B. A disjunctive concept
 - C. An image
 - D. A conjunctive concept
- Answer: A conjunctive concept

254. The concepts which refer to relationship between two elements in a situation is known as:

- A. Relational Concepts
- B. Simple concepts
- C. Conjunctive Concepts
- D. None of the above

Answer: Relational Concepts

255. In which strategy in concept learning, the "S" immediately jumps to the conclusion?

- A. Gambler's approach
- B. Conservative approach
- C. Wholist approach
- D. Partist approach

Answer: Gambler's approach

256. In "Conservative Approach", in the strategies in concept formation, the "S" (Subject) proceeds very cautiously and systematically concentrating on:

- A. Three features of the card at a time
- B. Four features of the card at a time
- C. One feature of the card at a time
- D. None of the above

Answer: One feature of the card at a time

257. A German Psychologist, Karl Duncker, first proposed the concept of:

- A. Implicit Speech
- B. Subvocal talking
- C. Functional Fixity
- D. Realistic Thinking

Answer: Functional Fixity

258. "Functional Fixedness" is an important factor in:

- A. Day Dreaming
- B. Thinking
- C. Problem Solving
- D. None of the above

Answer: None of the above

259. Knowledge of 'phonemes' is essential for comprehending a language, but the phonemes themselves do not form a unit of perception of a language. The reason is that we never hear them one at a time. What we actually hear is two or three phonemes combined into a syllable called:

- A. A morpheme
- B. A phoneme
- C. A concept
- D. An image

Answer: A morpheme

260. The range between the loudest and the weakest sounds that an individual can make is called:

- A. Dynamic range
- B. Sensory range
- C. Pitch range
- D. None of the above

Answer: Dynamic range

261. The information processing theory emphasizes the contribution of the child rather than the role of reinforcement as emphasized by the:

- A. Operant model
- B. Insightful learning model
- C. Classical conditioning model
- D. Trial-and-Error model

Answer: Operant model

262. In 1860s, a French physician Paul Broca showed that a lower part of the frontal lobe, a short distance above and in the front of the left ear was mainly responsible for the:

- A. Creativity
- B. Formation and development of images

C. Control of spoken language

D. Concept formation

Answer: Control of spoken language

263.The language region in the lowerfrontal lobe is known as:

A. Broca's Area

B. Sherrington' Area

C. Wernicke's Area

D. None of the above

Answer: Broca's Area

264.The general term for speechdisorder due to brain damage is known as:

A. Aphasia

B. Paresthesia

C. Astasia-abasia

D. Aphonia

Answer: Aphasi

265. which of the following controlsthyroid gland?

A. metabolism

B. glucose absorption

C. emotions

D. a and b

E. b and c

F. none of these

Answer – A

266. --- is the process in whichdetecting ,translating and transmitting from external environment to brain...

A. adaptation

B. selective attention

C. sensation

D. perception

E. a and b both

F. none of these

Answer – C

267. Most common form of MoodDisorder...

A. Bipolar I

B. Bipolar II

C. Seasonal Affective Disorder

D. Major Depressive Disorder

E. a and c both

F. none of these

Answer – D

268. Which one option is not a compulsive behaviour with Obsessive-Compulsive Disorder?

- A.** Tapping
- B.** Hoarding
- C.** Washing
- D.** Checking
- E.** c and d both
- F.** none of these

Answer – A

269.— disorders is not more common in female populations...

- A.** AN
- B.** MDD
- C.** BPD
- D.** SP
- E.** a and d both
- F.** none of these

Answer – C

270.: Which one option is not commonly diagnosed in criminals?

- A.** Depersonalization Disorder
- B.** Narcissistic Personality Disorder
- C.** Schizophrenia
- D.** Anti-Social Personality Disorder
- E.** a and d both
- F.** none of these

Answer – C

271: Many celebrities said to have experienced which type of somatic disorder...

- A.** Disorder
- B.** Body Dysmorphic Dearealisation Disorder
- C.** Hyperchondriasis
- D.** Somatoform Disorder
- E.** all of these
- F.** noe of these

Answer – C

272: Many celebrities said to have experienced which type of somatic disorder...

- A.** Disorder
- B.** Body Dysmorphic Dearealisation Disorder
- C.** Hyperchondriasis
- D.** Somatoform Disorder
- E.** all of these
- F.** noe of these

Answer – C

273: Our general method for dealing with environment is...

- A.** perceptual style
- B.** cognitive style
- C.** personality perceptual style
- D.** intelligence
- E.** none of these
- F.** a and c both

Answer – B

274. The child's increasing skill at using his muscles is because of...

- A.** An opportunity to exercise
- B.** Pushing by parents
- C.** Learning
- D.** Maturation
- E.** a and b
- F.** None of these

Answer – D

275: psychological domain is...

- A.** Style of behaving
- B.** Memory
- C.** Motor skills
- D.** Judgment
- E.** b and c both
- F.** None of these

Answer – A

276. People lost touch with reality, when they are...

- A.** Manic
- B.** Neurotic
- C.** Psychotic
- D.** Psychopathic
- E.** c and d both
- F.** None of these

Answer – C

277. 'Importance' of intelligence can be judged according to which of the following?

- A.** The perception of its existence
- B.** The use of 'intelligence'
- C.** Its function in achieving social outcome that is valued by the society
- D.** All of the above

Answer: d. All of the above

278. Which of the following is NOT a situation for which an intelligence test is useful?

- A.** Assess weaknesses of a student in school
- B.** Help psychologists design rehabilitation programmes for neuropsychological patients
- C.** Find out the amount of future earning of a person
- D.** Help school psychologists plan an educational intervention programme for students who struggle

Answer: c. Find out the amount of future earning of a person

279. When examining criterion validity of IQ, which of the following is important?

- A.** The time of day when IQ was measured
- B.** The IQ test that was used
- C.** The psychologist who administers the test
- D.** Determining the direction of causality

Answer: d. Determining the direction of causality

280. Which of the following is least predicted by intelligence?

- A.** Academic success
- B.** Physical height
- C.** Occupational status
- D.** Family income

Answer: b. Physical height

281. In an educational setting, it has been found that ...

- A.** as grade level increases, intelligence becomes more important
- B.** intelligence is negatively correlated with diligence
- C.** high intelligence level leads to higher academic achievement
- D.** IQ is only relevant when non-verbal tests are used

Answer: a. as grade level increases, intelligence becomes more important

282. In a study of high school students, intelligence explained ...

- A.** as much variance in their academic achievement as their personality
- B.** less variance in their academic achievement than emotional intelligence
- C.** more variance in their academic achievement than either their personality or emotional intelligence
- D.** close to zero variance in their academic achievement

Answer: c. more variance in their academic achievement than either their personality or emotional intelligence

283. Intelligence can predict academic success ...

- A.** up until undergraduate degree qualification
- B.** beyond undergraduate degree qualification
- C.** in primary school only
- D.** in high school only

Answer: b. beyond undergraduate degree qualification

284. Which of the following can be predicted by intelligence?

- A.** Job level attained
- B.** Job-related training performance
- C.** Actual job performance
- D.** All of the above

Answer: d. All of the above

285. In non-Western countries, and excluding Australia and Japan, there is a vacuum of evidence for IQ predicting job performance. What does this suggest?

- A.** Non-Western countries do not measure job performance
- B.** IQ is an idea of the Western world
- C.** Researchers do not study non-Western countries
- D.** Job performance can only be measured through career advancement

Answer: b. IQ is an idea of the Western world

286. In terms of occupational types, high IQ scores are often found ...

- A.** among persons with physical jobs such as labourers
- B.** equally across all job types
- C.** among persons whose jobs require abstract thinking skills
- D.** among army recruits

Answer: c. among persons whose jobs require abstract thinking skills

287. A possible reason for why intelligence is predictive of job performance is that...

- A.** intelligence relates to the ability to handle complex information and learn
- B.** intelligence provides the person with a sense of confidence
- C.** intelligent individuals get along well with their supervisor who rates them favourably
- D.** all of the above

Answer: a. intelligence relates to the ability to handle complex information and learn

288. Which of the following statements is true of a study of US military personnel reported by Gottfredson (1997)?

- A.** There were many more high cognitive ability scorers who have trouble completing their military training compared to low scorers
- B.** There were as many high cognitive ability scorers as low scorers who have trouble completing their military training
- C.** Most of the high cognitive ability scorers completed their military training compared to the low scorers
- D.** Most high cognitive ability scorers completed their military training without complaining

Answer: c. Most of the high cognitive ability scorers completed their military training compared to the low scorers

289. The reason for why IQ would be related to income is ...

- A.** high intelligence leads the individual to seek further postgraduate training which in turn leads to highly valued and higher paid jobs.

- B.** knowledge equals to money
- C.** highly intelligent people are more likely to make themselves appear successful
- D.** employers are more likely to employ highly respected people

Answer: a. high intelligence leads the individual to seek further postgraduate training which in turn leads to highly valued and higher paid job.

290. Which of the following are explanations offered for why childhood IQs are negatively correlated with the risk of adult coronary heart disease?

- A.** Disease prevention mechanism is in operation such that higher intelligence is associated with healthier lifestyle
- B.** Disease management mechanism is in operation such that intelligent individuals can self-administer medication better
- C.** Intelligence leads individuals to avoid unhealthy environment and hazardous jobs which may damage health
- D.** All of the above

Answer: d. All of the above

291. Whilst cross-sectional studies may hint that obesity leads to low IQ, longitudinal studies where childhood IQ was measured before health indicators were measured later in adulthood showed that ...

- A.** obesity risks are not real
- B.** higher IQ increases the risk of obesity
- C.** lower IQ increases the risk of obesity
- D.** IQ and obesity are not related

Answer: c. lower IQ increases the risk of obesity

292. The child's increasing skill at using his muscles is due chiefly to:

- A.** Maturation
- B.** Learning
- C.** Pushing by parents
- D.** An opportunity to exercise

Answer: Option [B]

293. In three-factor models of personality a 'Constraint' factor is sometimes proposed. In Big Five terms, 'Constraint' is best understood as a combination of ...

- A.** low Extraversion and high Agreeableness
- B.** low Extraversion and low Agreeableness
- C.** high Conscientiousness and high Agreeableness
- D.** high Conscientiousness and low Agreeableness

Answer: c. high Conscientiousness and high Agreeableness

294. What combination of Big Five personality characteristics is associated with authoritarian tendencies?

- A.** Low Agreeableness and high Conscientiousness

- B.** Low Openness and high Conscientiousness
 - C.** High Neuroticism and low Agreeableness
 - D.** Low Openness and high Neuroticism
- Answer: b. Low Openness and high Conscientiousness

295. Which attachment style is associated with showing anger and upset during a discussion of a relationship problem with one's partner and reduced love and commitment toward them after it?

- A.** Secure
- B.** Insecure
- C.** Avoidant
- D.** Anxious/ambivalent

Answer: d. Anxious/ambivalent

296. Which of the following statements best describes the 'indigenous approach' to examining cultural variations in personality structure?

- A.** It employs indigenous people as research assistants
- B.** It translates Western personality measures into indigenous languages
- C.** It starts with the personality concepts and trait terms of the culture of interest
- D.** It addresses the personality structure of colonized peoples

Answer: c. It starts with the personality concepts and trait terms of the culture of interest

297. Which of the following statements best describes the current state of research on personality types?

- A.** Categorical personality types are very rare
- B.** Type A personality is an either-or personality type
- C.** Research shows that the Myers-Briggs Type Indicator identifies true personality types
- D.** Most personality variation between people is not well described by continuous dimensions

Answer: a. Categorical personality types are very rare

298. Conditioned response may be eliminated by withdrawing reinforcement. This is known as:

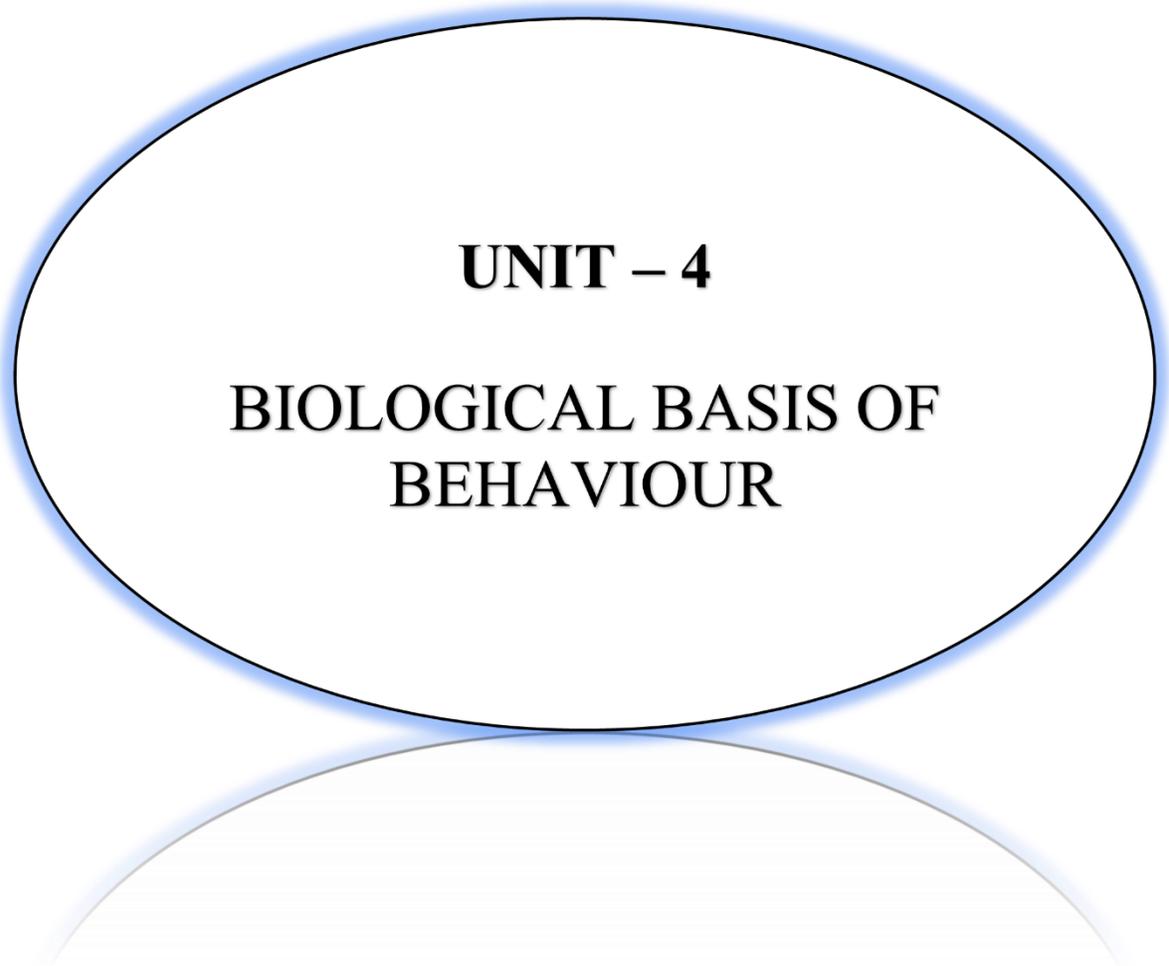
- A.** A Extinction
- B.** B Discrimination
- C.** C Spontaneous recovery
- D.** D Stimulus generalization

Answer: Option [A]

293. Any stimulus that follows a behavior and increases the likelihood that the behavior will be repeated is called a:

- A.** A Cue
- B.** B Punisher
- C.** C reinforcer
- D.** D Situational stimulus

Answer: Option [c]



UNIT - 4

**BIOLOGICAL BASIS OF
BEHAVIOUR**

Biological basis of behavior

What is Sensory systems: General and specific sensations, receptors and processes Neurons: Structure, functions, types, neural impulse, synaptic transmission. Neurotransmitters?

Sensory systems: General and specific sensations, receptors and processes Neurons: Structure, functions, types, neural impulse, synaptic transmission. Neurotransmitters

In more advanced animals, the senses are constantly at work, making the animal aware of stimuli, such as light or sound or the presence of a chemical substance in the external environment, while monitoring information about the organism's internal environment. All bilaterally symmetric animals have a sensory system.

The development of any species' sensory system has been driven by natural selection; thus, sensory systems differ among species according to the demands of their environments. For example, the shark, unlike most fish predators, is electro-sensitive (i.e., sensitive to electrical fields produced by other animals in its environment). While it is helpful to this underwater predator, electro-sensitivity is a sense not found in most land animals.

Senses provide information about the body and its environment. Humans have five special senses: olfaction (smell), gustation (taste), equilibrium (balance and body position), vision, and hearing. Additionally, we possess general senses, also called somatosensation, which respond to stimuli like temperature, pain, pressure, and vibration. Vestibular sensation, which is an organism's sense of spatial orientation and balance, proprioception (position of bones, joints, and muscles), and the sense of limb position that is used to track kinesthesia (limb movement) are part of somatosensation.

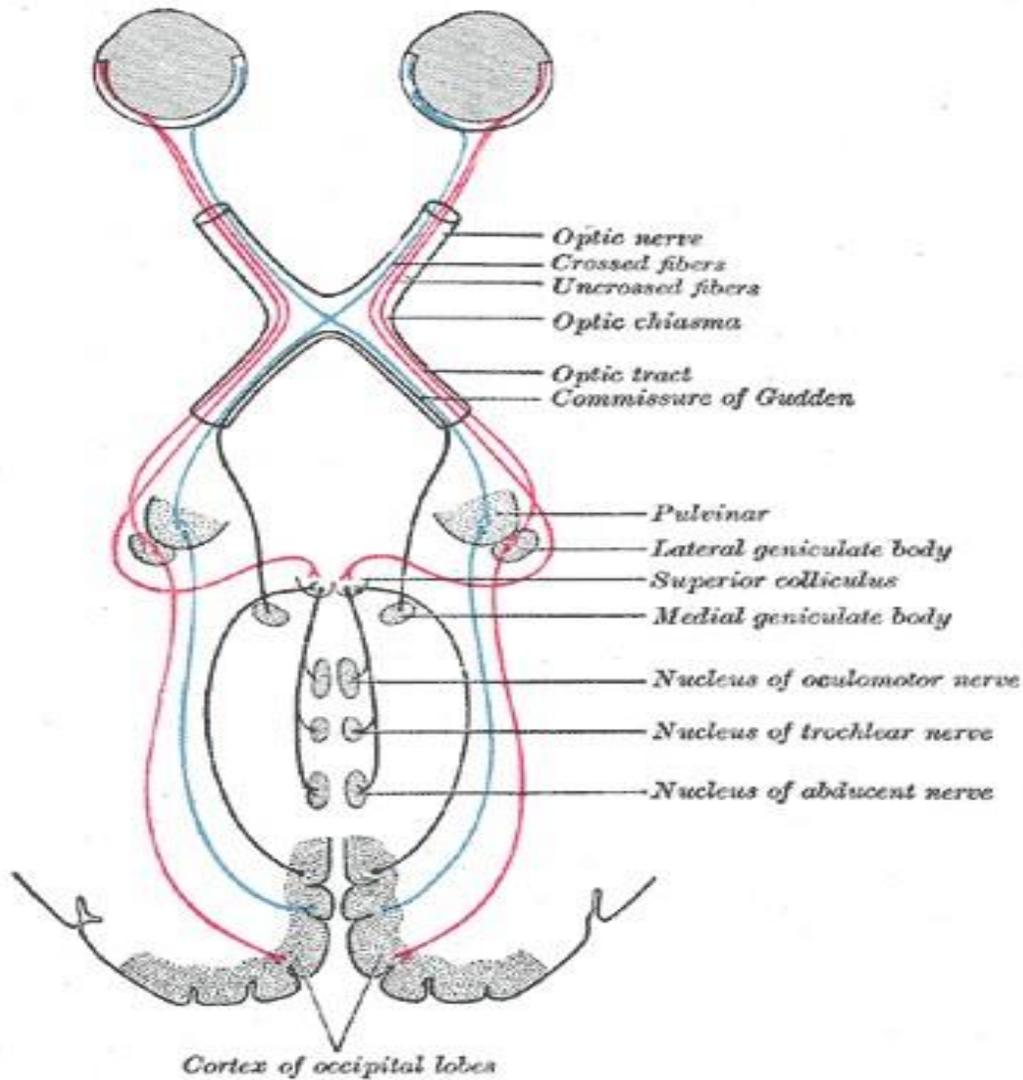
Although the sensory systems associated with these senses are very different, all share a common function: to convert a stimulus (light, sound, or the position of the body) into an electrical signal in the nervous system. This process is called sensory transduction. There are two broad types of cellular systems that perform sensory transduction. In one, a neuron works with a sensory receptor, a cell, or cell process that is specialized to engage with and detect a specific stimulus. Stimulation of the sensory receptor activates the associated afferent neuron, which carries information about the stimulus to the central nervous system. In the second type of sensory transduction, a sensory nerve ending responds to a stimulus in the internal or external environment; this neuron constitutes the sensory receptor.

Free nerve endings can be stimulated by several different stimuli, thus showing little receptor specificity. For example, pain receptors in your gums and teeth may be stimulated by temperature changes, chemical stimulation, or pressure.

Reception

The first step in sensation is reception: the activation of sensory receptors by stimuli such as mechanical stimuli (being bent or squished, for example), chemicals, or temperature. The receptor can then respond to the stimuli. The region in space in which a given sensory receptor can re-

spond to a stimulus, be it far away or in contact with the body, is that receptor's receptive field. Think for a moment about the differences in receptive fields for the different senses. For the sense of touch, a stimulus must come into contact with body. For the sense of hearing, a stimulus can be a moderate distance away. For vision, a stimulus can be very far away; for example, the visual system perceives light from stars at enormous distances.



Visual sensory System:

This scheme shows the flow of information from the eyes to the central connections of the optic nerves and optic tracts, to the visual cortex. Area V1 is the region of the brain which is engaged in vision.

Key Points

- Sensory signals are converted to electrical signals via depolarization of sensory neuron membranes upon stimulus of the receptor, which causes opening of gated ion channels that cause the membrane potential to reach its threshold.
- The receptor potentials are classified as graded potentials; the magnitude of these potentials

- is dependent on the strength of the stimulus.
- The sensory system shows receptor specificity; although stimuli can be combined in processing regions of the brain, a specific receptor will only be activated by its specific stimulus.
- The brain contains specific processing regions (such as the somatosensory, visual, and auditory regions) that are dedicated to processing the information which has previously passed through the thalamus, the 'clearinghouse and relay station' for both sensory and motor signals.
- The four major components of encoding and transmitting sensory information include: the type of stimulus, the stimulus location within the receptive field, the duration, and the intensity of the stimulus.

Key Terms

- **membrane potential:** the difference in electrical potential across the enclosing membrane of a cell
- **action potential:** a short term change in the electrical potential that travels along a cell
- **transduction:** the translation of a sensory signal in the sensory system to an electrical signal in the nervous system

Transduction

The most fundamental function of a sensory system is the translation of a sensory signal to an electrical signal in the nervous system. This takes place at the sensory receptor. The change in electrical potential that is produced is called the receptor potential. How is sensory input, such as pressure on the skin, changed to a receptor potential? As an example, a type of receptor called a mechanoreceptor possesses specialized membranes that respond to pressure. Disturbance of these dendrites by compressing them or bending them opens gated ion channels in the plasma membrane of the sensory neuron, changing its electrical potential. In the nervous system, a positive change of a neuron's electrical potential (also called the membrane potential), depolarizes the neuron. Receptor potentials are graded potentials: the magnitude of these graded (receptor) potentials varies with the strength of the stimulus. If the magnitude of depolarization is sufficient (that is, if membrane potential reaches a threshold), the neuron will fire an action potential. In most cases, the correct stimulus impinging on a sensory receptor will drive membrane potential in a positive direction, although for some receptors, such as those in the visual system, this is not always the case.

Sensory receptors for the various senses work differently from each other. They are specialized according to the type of stimulus they sense; thus, they have receptor specificity. For example, touch receptors, light receptors, and sound receptors are each activated by different stimuli. Touch receptors are not sensitive to light or sound; they are sensitive only to touch or pressure. However, stimuli may be combined at higher levels in the brain, as happens with olfaction, contributing to our sense of taste.

Encoding and Transmission of Sensory Information

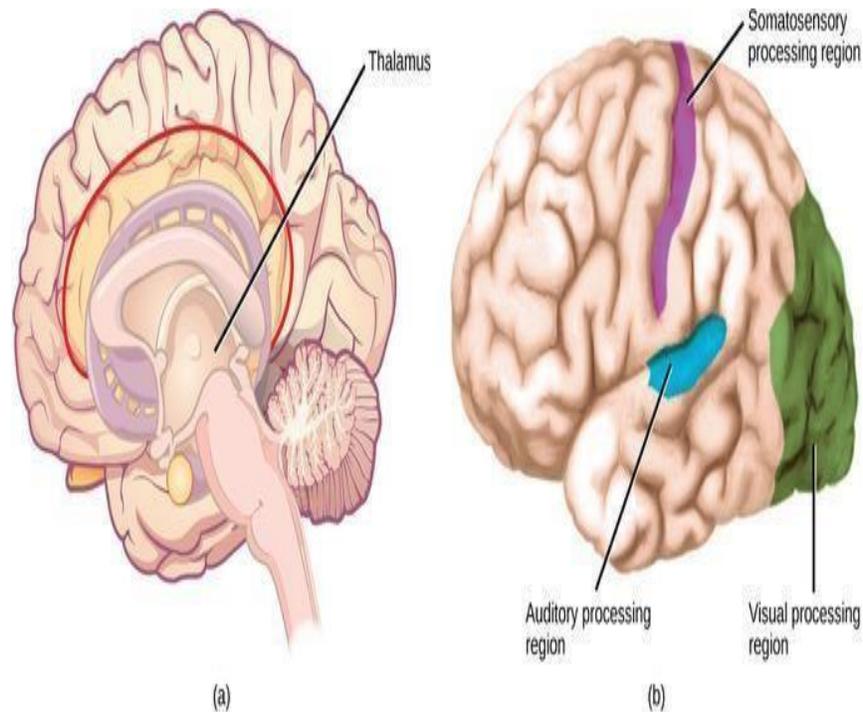
Four aspects of sensory information are encoded by sensory systems: the type of stimulus, the location of the stimulus in the receptive field, the duration of the stimulus, and the relative intensity of the stimulus. Thus, action potentials transmitted over a sensory receptor's afferent axons encode one type of stimulus. This segregation of the senses is preserved in other sensory circuits. For example, auditory receptors transmit signals over their own dedicated system. The electrical

activity in the axons of the auditory receptors will be interpreted by the brain as an auditory stimulus: a sound.

The intensity of a stimulus is often encoded in the rate of action potentials produced by the sensory receptor. Thus, an intense stimulus will produce a more rapid train of action potentials. Reducing the stimulus will likewise slow the rate of production of action potentials. A second way in which intensity is encoded is by the number of receptors activated. An intense stimulus might initiate action potentials in a large number of adjacent receptors, while a less intense stimulus might stimulate fewer receptors. Integration of sensory information begins as soon as the information is received in the central nervous system.

Perception

Perception is an individual's interpretation of a sensation. Although perception relies on the activation of sensory receptors, perception happens, not at the level of the sensory receptor, but at the brain level. The brain distinguishes sensory stimuli through a sensory pathway: action potentials from sensory receptors travel along neurons that are dedicated to a particular stimulus.



All sensory signals, except those from the olfactory system, are transmitted through the central nervous system: they are routed to the thalamus and to the appropriate region of the cortex. The thalamus is a structure in the forebrain that serves as a clearinghouse and relay station for sensory (as well as motor) signals. When the sensory signal exits the thalamus, it is conducted to the specific area of the cortex dedicated to processing that particular sense.

Function of senses

1. Detection of sensations allow the human body to be aware of changes (or stimuli) that occur in the environment or inside the body.
2. These senses permit the central nervous system to produce reactions for the stimuli and main-

tain body homeostasis.

3. Somatic senses ("soma" means body) detect touch, pain pressure, temperature, and tension on the skin and in internal organs.
4. Special senses detect the sensations of taste, smell, hearing, equilibrium, and sight, only in special sense organs in the head region (a phenomenon known as "cephalization").
5. All senses are detected by sensory receptors, and after integration and processing being done in the central nervous system, motor nerves produce a response.

6. Somatic Senses

1. sensory receptors in the skin, muscles, joints, and visceral organs detect external and internal stimuli of the body.
2. Three types of somatic senses:
 - a) Exteroceptive senses detect changes that occur at body surface, such as touch, pressure and temperature.
 - b) Proprioceptive senses detect changes that occur in muscles, tendons, ligaments and joint tissues.
 - c) Visceroceptive senses detect changes that occur in internal organs.

Special Senses

1. The senses of taste and smell (detected by chemoreceptors), hearing and equilibrium (detected by mechanoreceptors), and vision (detected by photoreceptors) are the five special senses.
2. Require specialized sensory receptors within large, complex sensory organs in the head region

Sense of Smell

- a) olfactory receptors located in "olfactory organs" are specialized chemoreceptors in the nasal cavity.
- b) olfactory receptors are bipolar neurons surrounded by ciliated columnar cells. These sensory cells, after being stimulated by olfactory sensations, send nerve impulses along the olfactory (cranial nerve I) to the cerebrum.
- c) gases in the air entering the nasal cavity are dissolved by nasal mucus (secreted by goblet cells in the columnar epithelium), and the resulting solution stimulates various olfactory receptors.

Sense of Taste

- a) about 10,000 taste buds occur in the oral cavity, mostly on the tongue. Each taste bud contains 40-60 taste receptors. These sensory cells, are stimulated by taste sensations.
- b) chemical substances from the food or beverage enter the mouth and are dissolved in the saliva (secreted by salivary glands and mucous membrane of oral cavity).
- c) dissolved chemical substances stimulate various taste buds in different regions of the tongue, and combinations of taste sensations produce hundreds of different taste senses.

Sense of Vision

- Accessory structures of the eye are those that are not directly related the sense of vision, but facilitate the physiology of the eyeballs.
- Eyebrows – to shade the eyes from sunlight and to prevent perspiration from reaching the eyes.

- Eyelids- to protect the eyes from foreign objects (e.g. dust particles) ,and to prevent desiccation (drying) of the eyes by lubricating fluid.
- Conjunctiva- a mucous membrane on the inner lining of eyelids, which produces lubricating and cleansing fluid for the surface of eye.
- Lacrimal gland- exocrine gland that secretes a dilute saline solution called tears for moistening the eyes. [Tears contain mucus, antibodies ,and antibacterial enzymes that protect the eye from infections. Emotional tears also contain enzymes that seem to help reduce stress levels].

Sense of Equilibrium

- a) detected by mechanoreceptors in the semicircular canals to help maintain body posture and body stability.
- b) nerve impulses generated by the receptors in semicircular canals are transmitted by the vestibular nerve to Nerve VIII, and the signals will be processed by the brain.

Sensory Modalities

Ask anyone what the senses are, and they are likely to list the five major senses—taste, smell, touch, hearing, and sight. However, these are not all of the senses. The most obvious omission from this list is balance. Also, what is referred to simply as touch can be further subdivided into pressure, vibration, stretch, and hair-follicle position, on the basis of the type of mechanoreceptors that perceive these touch sensations. Other overlooked senses include temperature perception by thermoreceptors and pain perception by nociceptors. Within the realm of physiology, senses can be classified as either general or specific. A **general sense** is one that is distributed throughout the body and has receptor cells within the structures of other organs. Mechanoreceptors in the skin, muscles, or the walls of blood vessels are examples of this type. General senses often contribute to the sense of touch, as described above, or to **proprioception** (body movement) and **kinesthesia** (body movement), or to a **visceral sense**, which is most important to autonomic functions. A **special sense** is one that has a specific organ devoted to it, namely the eye, inner ear, tongue, or nose. Each of the senses is referred to as a **sensory modality**. Modality refers to the way that information is encoded, which is similar to the idea of transduction.

Sensory Receptors

- **Structural Receptor Types**
- **Functional Receptor Types**

A major role of sensory receptors is to help us learn about the environment around us, or about the state of our internal environment. Stimuli from varying sources, and of different types, are received and changed into the electrochemical signals of the nervous system. This occurs when a stimulus changes the cell membrane potential of a sensory neuron. The stimulus causes the sensory cell to produce an action potential that is relayed into the central nervous system (CNS), where it is integrated with other sensory information—or sometimes higher cognitive functions—to become a conscious perception of that stimulus. The central integration may then lead to a motor response. Describing sensory function with the term sensation or perception is a deliberate distinction. **Sensation** is the activation of sensory receptor cells at the level of the stimulus. **Perception** is the central processing of sensory stimuli into a meaningful pattern. Perception is dependent on sensation, but not all sensations are perceived. Receptors are the cells or structures that detect sensations.

Sensory Receptors

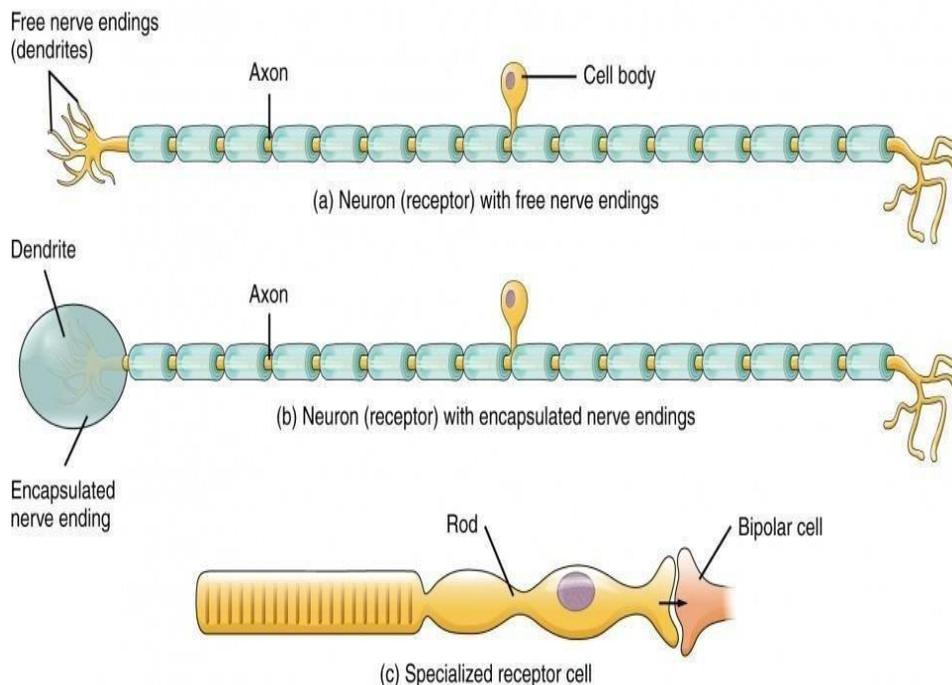
Stimuli in the environment activate specialized receptor cells in the peripheral nervous system. Different types of stimuli are sensed by different types of receptor cells. Receptor cells can be classified into types on the basis of three different criteria: cell type, position, and function. Receptors can be classified structurally on the basis of cell type and their position in relation to stimuli they sense. They can also be classified functionally on the basis of the **transduction** of stimuli, or how the mechanical stimulus, light, or chemical changed the cell membrane potential.

Structural Receptor Types

The cells that interpret information about the environment can be either

- (1) a neuron that has a **free nerve ending**, with dendrites embedded in tissue that would receive a sensation;
- (2) a neuron that has an **encapsulated ending** in which the sensory nerve endings are encapsulated in connective tissue that enhances their sensitivity; or
- (3) a specialized **receptor cell**, which has distinct structural components that interpret a specific type of stimulus (Figure 8.30). The pain and temperature receptors in the dermis of the skin are examples of neurons that have free nerve endings. Also located in the dermis of the skin are lamellated corpuscles, neurons with encapsulated nerve endings that respond to pressure and touch. The cells in the retina that respond to light stimuli are an example of a specialized receptor, a **photoreceptor**. Receptor cell types can be classified on the basis of their structure.

Sensory neurons can have either



- (a) free nerve endings or
- (b) encapsulated endings. Photoreceptors in the eyes, such as rod cells, are examples of
- (c) specialized receptor cells. These cells release neurotransmitters onto a bipolar cell, which then synapses with the optic nerve neurons.

Another way that receptors can be classified is based on their location relative to the stimuli. An **exteroceptor** is a receptor that is located near a stimulus in the external environment, such as the

receptors that are located in the skin. An **interoceptor** is one that interprets stimuli from internal organs and tissues, such as the receptors that sense the increase in blood pressure in the aorta or carotid sinus. Finally, a **proprioceptor** is a receptor located near a moving part of the body, such as a muscle, that interprets the positions of the tissues as they move.

Functional Receptor Types

A third classification of receptors is by the stimulus that is used to initiate the process of transduction. Chemical stimuli can be interpreted by a **chemoreceptor** that interprets chemical stimuli, such as an object's taste or smell. **Osmoreceptors** respond to solute concentrations of body fluids. Additionally, pain is primarily a chemical sense that interprets the presence of chemicals from tissue damage, or similar intense stimuli, through a **nociceptor**. Physical stimuli, such as pressure and vibration, as well as the sensation of sound and body position (balance), are interpreted through a **mechanoreceptor**. Light is detected by **photoreceptors** in the eyes. Another physical stimulus that has its own type of receptor is temperature, which is sensed through a **thermoreceptor** that is either sensitive to temperatures above (heat) or below (cold) normal body temperature.

Sensory Modalities

Ask anyone what the senses are, and they are likely to list the five major senses—taste, smell, touch, hearing, and sight. However, these are not all of the senses. The most obvious omission from this list is balance. Also, what is referred to simply as touch can be further subdivided into pressure, vibration, stretch, and hair-follicle position, on the basis of the type of mechanoreceptors that perceive these touch sensations. Other overlooked senses include temperature perception by thermoreceptors and pain perception by nociceptors.

Within the realm of physiology, senses can be classified as either general or special. A **general sense** is one that is distributed throughout the body and has receptor cells within the structures of other organs. Mechanoreceptors in the skin, muscles, or the walls of blood vessels are examples of this type. General senses often contribute to the sense of touch, as described above, or to **proprioception** (body position) and **kinesthesia** (body movement), or to a **visceral sense**, which is most important to autonomic functions. A **special sense** (discussed in Chapter 15) is one that has a specific organ devoted to it, namely the eye, inner ear, tongue, or nose.

Each of the senses is referred to as a **sensory modality**. Modality refers to the way that information is encoded into a perception. The main sensory modalities can be described on the basis of how each stimulus is transduced and perceived. The chemical senses include taste and smell. The general sense that is usually referred to as touch includes chemical sensation in the form of nociception, or pain. Pressure, vibration, muscle stretch, and the movement of hair by an external stimulus, are all sensed by mechanoreceptors and perceived as touch or proprioception. Hearing and balance are also sensed by mechanoreceptors. Finally, vision involves the activation of photoreceptors.

Listing all the different sensory modalities, which can number as many as 17, involves separating the five major senses into more specific categories, or **submodalities**, of the larger sense. An individual sensory modality represents the sensation of a specific type of stimulus. For example, the

general sense of touch, which is known as **somatosensation**, can be separated into light pressure, deep pressure, vibration, itch, pain, temperature, or hair movement. In this chapter we will discuss the general senses which include pain, temperature, touch, pressure, vibration and proprioception. We will discuss the special senses, which include smell, taste, vision, hearing and the vestibular system, in chapter 15.

Somatosensation (Touch)

Somatosensation is considered a general sense, as opposed to the submodalities discussed in this section. Somatosensation is the group of sensory modalities that are associated with touch and limb position. These modalities include pressure, vibration, light touch, tickle, itch, temperature, pain, proprioception, and kinesthesia. This means that its receptors are not associated with a specialized organ, but are instead spread throughout the body in a variety of organs. Many of the somatosensory receptors are located in the skin, but receptors are also found in muscles, tendons, joint capsules and ligaments.

Two types of somatosensory signals that are transduced by free nerve endings are pain and temperature. These two modalities use thermoreceptors and nociceptors to transduce temperature and pain stimuli, respectively. Temperature receptors are stimulated when local temperatures differ from body temperature. Some thermoreceptors are sensitive to just cold and others to just heat. Nociception is the sensation of potentially damaging stimuli. Mechanical, chemical, or thermal stimuli beyond a set threshold will elicit painful sensations. Stressed or damaged tissues release chemicals that activate receptor proteins in the nociceptors. For example, the sensation of pain or heat associated with spicy foods involves **capsaicin**, the active molecule in hot peppers. Capsaicin molecules bind to a transmembrane ion channel in nociceptors that is sensitive to temperatures above 37°C. The dynamics of capsaicin binding with this transmembrane ion channel is unusual in that the molecule remains bound for a long time. Because of this, it will decrease the ability of other stimuli to elicit pain sensations through the activated nociceptor. For this reason, capsaicin can be used as a topical analgesic, such as in products like Icy Hot™.

If you drag your finger across a textured surface, the skin of your finger will vibrate. Such low frequency vibrations are sensed by mechanoreceptors called Merkel cells, also known as type I cutaneous mechanoreceptors. Merkel cells are located in the stratum basale of the epidermis. Deep pressure and vibration is transduced by lamellated (Pacinian) corpuscles, which are receptors with encapsulated endings found deep in the dermis, or subcutaneous tissue. Light touch is transduced by the encapsulated endings known as tactile (Meissner's) corpuscles. Follicles are also wrapped in a plexus of nerve endings known as the hair follicle plexus. These nerve endings detect the movement of hair at the surface of the skin, such as when an insect may be walking along the skin. Stretching of the skin is transduced by stretch receptors known as bulbous corpuscles. Bulbous corpuscles are also known as Ruffini corpuscles, or type II cutaneous mechanoreceptors.

Other somatosensory receptors are found in the joints and muscles. Stretch receptors monitor the stretching of tendons, muscles, and the components of joints. For example, have you ever stretched your muscles before or after exercise and noticed that you can only stretch so far before your muscles spasm back to a less stretched state? This spasm is a reflex that is initiated by

stretch receptors to avoid muscle tearing. Such stretch receptors can also prevent over-contraction of a muscle. In skeletal muscle tissue, these stretch receptors are called muscle spindles. Golgi tendon organs similarly transduce the stretch levels of tendons. Bulbous corpuscles are also present in joint capsules, where they measure stretch in the components of the skeletal system within the joint. Additionally, lamellated corpuscles are found adjacent to joint capsules and detect vibrations associated with movement around joints. The types of nerve endings, their locations, and the stimuli they transduce are presented in the table below.

***No corresponding eponymous name.**

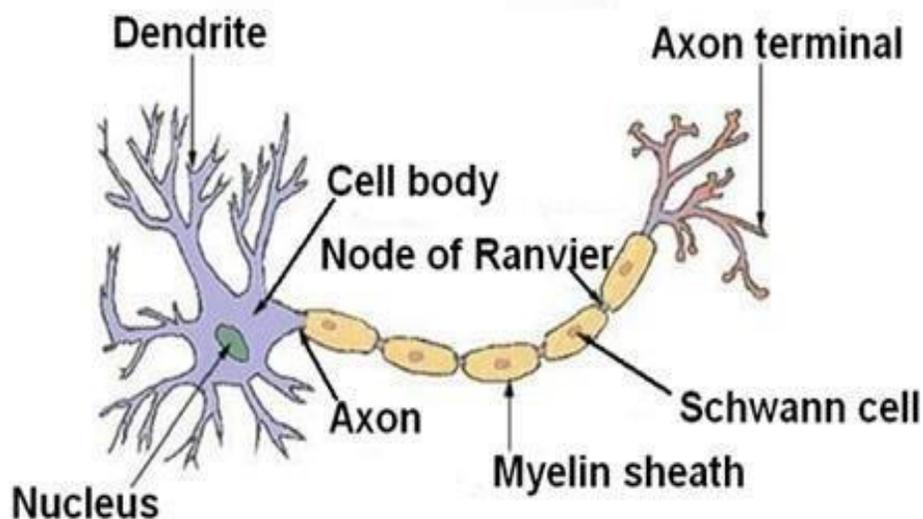
Mechanoreceptors of Somatosensation (Table 13.1)			
Name	Historical (eponymous) name	Location(s)	Stimuli
Mechanoreceptors of Somatosensation (Table 13.1)			
Name	Historical (eponymous) name	Location(s)	Stimuli
Free nerve endings	*	Dermis, cornea, tongue, joint capsules	Pain, temperature, mechanical deformation
Mechanoreceptors	Merkel's discs	Epidermal-dermal junction, mucosal membranes	Low frequency vibration (5-15Hz)
Bulbous corpuscle	Ruffini's corpuscle	Dermis, joint capsules	Stretch
Tactile corpuscle	Meissner's corpuscle	Papillary dermis, especially in the fingertips and lips	Light touch, vibrations below 50 Hz
Lamellated	Pacinian	Deep dermis, subcutaneous	Deep pressure, high-frequency
Mechanoreceptors of Somatosensation (Table 13.1)			
Name	Historical (eponymous) name	Location(s)	Stimuli
corpuscle	corpuscle	tissue, joint capsules	vibration (around 250 Hz)
Hair follicle plexus	*	Wrapped around hair follicles in the dermis	Movement of hair
Muscle spindle	*	In line with skeletal muscle fibers	Muscle contraction and stretch
Tendon stretch organ	Golgi tendon organ	In line with tendons	Stretch of tendons

Neurons: Structure, functions, types, neural impulse, synaptic transmission. Neurotransmitters.

Key Points

- Neurons are specialized cells that transmit chemical and electrical signals in the brain; they are the basic building blocks of the central nervous system.
- The primary components of the neuron are the soma (cell body), the axon (a long slender projection that conducts electrical impulses away from the cell body), dendrites (tree-like structures that receive messages from other neurons), and synapses (specialized junctions between neurons).
- Some axons are covered with myelin, a fatty material that acts as an insulator and conductor to speed up the process of communication.
- Sensory neurons are neurons responsible for converting external stimuli from the environment into corresponding internal stimuli.
- Motor neurons are neurons located in the central nervous system (CNS); they project their axons outside of the CNS to directly or indirectly control muscles.
- Interneurons act as the “middle men” between sensory and motor neurons, which convert external stimuli to internal stimuli and control muscle movement, respectively.

Structure of a Typical Neuron



The neuron is the basic building block of the brain and central nervous system. Neurons are specialized cells that transmit chemical and electrical signals. The brain is made up entirely of neurons and glial cells, which are non-neuronal cells that provide structure and support for the neurons. Nearly 86 billion neurons work together within the nervous system to communicate with the rest of the body. They are responsible for everything from consciousness and thought to pain and hunger. There are three primary types of neuron: sensory neurons, motor neurons, and interneurons.

Structures of a Neuron

In addition to having all the normal components of a cell (nucleus, organelles, etc.) neurons also contain unique structures for receiving and sending the electrical signals that make neuronal

communication possible.

The structure of a neuron: The above image shows the basic structural components of an average neuron, including the dendrite, cell body, nucleus, Node of Ranvier, myelin sheath, Schwann cell, and axon terminal.

Dendrite

Dendrites are branch-like structures extending away from the cell body, and their job is to receive messages from other neurons and allow those messages to travel to the cell body. Although some neurons do not have any dendrites, other types of neurons have multiple dendrites. Dendrites can have small protrusions called dendritic spines, which further increase surface area for possible connections with other neurons.

Cell Body

Like other cells, each neuron has a cell body (or soma) that contains a nucleus, smooth and rough endoplasmic reticulum, Golgi apparatus, mitochondria, and other cellular components.

Axon

An axon, at its most basic, is a tube-like structure that carries an electrical impulse from the cell body (or from another cell's dendrites) to the structures at opposite end of the neuron—axon terminals, which can then pass the impulse to another neuron. The cell body contains a specialized structure, the axon hillock, which serves as a junction between the cell body and the axon.

Synapse

The synapse is the chemical junction between the axon terminals of one neuron and the dendrites of the next. It is a gap where specialized chemical interactions can occur, rather than an actual structure.

Function of a Neuron

The specialized structure and organization of neurons allows them to transmit signals in the form of electric impulses from the brain to the body and back. Individually, neurons can pass a signal all the way from their own dendrites to their own axon terminals; but at a higher level neurons are organized in long chains, allowing them to pass signals very quickly from one to the other. One neuron's axon will connect chemically to another neuron's dendrite at the synapse between them. Electrically charged chemicals flow from the first neuron's axon to the second neuron's dendrite, and that signal will then flow from the second neuron's dendrite, down its axon, across a synapse, into a third neuron's dendrites, and so on.

This is the basic chain of neural signal transmission, which is how the brain sends signals to the muscles to make them move, and how sensory organs send signals to the brain. It is important that these signals can happen quickly, and they do. Think of how fast you drop a hot potato—before you even realize it is hot. This is because the sense organ (in this case, the skin) sends the signal “This is hot!” to neurons with very long axons that travel up the spine to the brain. If this didn't happen quickly, people would burn themselves.

Other Structures

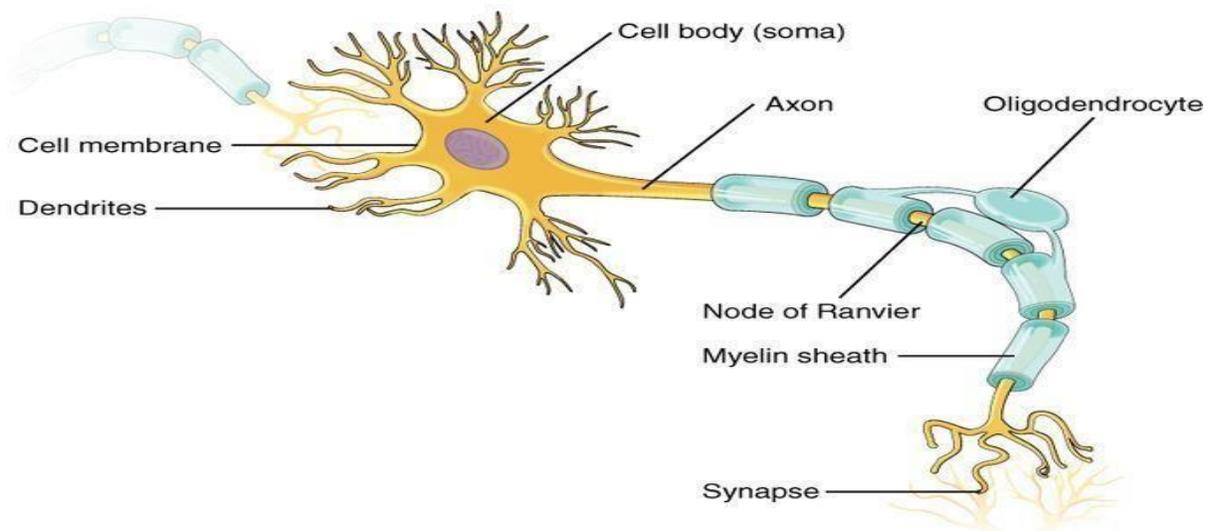
Dendrites, cell bodies, axons, and synapses are the basic parts of a neuron, but other important structures and materials surround neurons to make them more efficient.

Myelin Sheath

Some axons are covered with myelin, a fatty material that wraps around the axon to form the myelin sheath. This external coating functions as insulation to minimize dissipation of the electrical signal as it travels down the axon. Myelin's presence on the axon greatly increases the speed of conduction of the electrical signal, because the fat prevents any electricity from leaking out. This insulation is important, as the axon from a human motor neuron can be as long as a meter—from the base of the spine to the toes. Periodic gaps in the myelin sheath are called nodes of Ranvier. At these nodes, the signal is “recharged” as it travels along the axon.

Glial Cells

The myelin sheath is not actually part of the neuron. Myelin is produced by glial cells (or simply glia, or “glue” in Greek), which are non-neuronal cells that provide support for the nervous system. Glia function to hold neurons in place (hence their Greek name), supply them with nutrients, provide insulation, and remove pathogens and dead neurons. In the central nervous system, the glial cells that form the myelin sheath are called oligodendrocytes; in the peripheral nervous system, they are called Schwann cells.



Neuron in the central nervous system: This neuron diagram also shows the oligodendrocyte, myelin sheath, and nodes of Ranvier.

Types of Neurons

There are three major types of neurons: sensory neurons, motor neurons, and interneurons. All three have different functions, but the brain needs all of them to communicate effectively with the rest of the body (and vice versa).

Sensory Neurons

Sensory neurons are neurons responsible for converting external stimuli from the environment into corresponding internal stimuli. They are activated by sensory input, and send projections to other elements of the nervous system, ultimately conveying sensory information to the brain or

spinal cord. Unlike the motor neurons of the central nervous system (CNS), whose inputs come from other neurons, sensory neurons are activated by physical modalities (such as visible light, sound, heat, physical contact, etc.) or by chemical signals (such as smell and taste).

Most sensory neurons are pseudounipolar, meaning they have an axon that branches into two extensions—one connected to dendrites that receive sensory information and another that transmits this information to the spinal cord.

Multipolar and pseudounipolar neurons: This diagram shows the difference between: 1) a unipolar neuron; 2) a bipolar neuron; 3) a multipolar neuron; 4) a pseudounipolar neuron.

Motor Neurons

Motor neurons are neurons located in the central nervous system, and they project their axons outside of the CNS to directly or indirectly control muscles. The interface between a motor neuron and muscle fiber is a specialized synapse called the neuromuscular junction. The structure of motor neurons is multipolar, meaning each cell contains a single axon and multiple dendrites. This is the most common type of neuron.

Interneurons

Interneurons are neither sensory nor motor; rather, they act as the “middle men” that form connections between the other two types. Located in the CNS, they operate locally, meaning their axons connect only with nearby sensory or motor neurons. Interneurons can save time and therefore prevent injury by sending messages to the spinal cord and back instead of all the way to the brain. Like motor neurons, they are multipolar in structure.

Stages of the Action Potential

Neural impulses occur when a stimulus depolarizes a cell membrane, prompting an action potential which sends an “all or nothing” signal.

Neural Impulses in the Nervous System

The central nervous system (CNS) goes through a three-step process when it functions: sensory input, neural processing, and motor output. The sensory input stage is when the neurons (or excitable nerve cells) of the sensory organs are excited electrically. Neural impulses from sensory receptors are sent to the brain and spinal cord for processing. After the brain has processed the information, neural impulses are then conducted from the brain and spinal cord to muscles and glands, which is the resulting motor output.

A neuron affects other neurons by releasing a neurotransmitter that binds to chemical receptors. The effect upon the postsynaptic (receiving) neuron is determined not by the presynaptic (sending) neuron or by the neurotransmitter itself, but by the type of receptor that is activated. A neurotransmitter can be thought of as a key, and a receptor as a lock: the key unlocks a certain response in the postsynaptic neuron, communicating a particular signal. However, in order for a presynaptic neuron to release a neurotransmitter to the next neuron in the chain, it must go through a series of changes in electric potential.

Stages of Neural Impulses

“Resting potential” is the name for the electrical state when a neuron is not actively being sig-

naled. A neuron at resting potential has a membrane with established amounts of sodium (Na^+) and potassium (K^+) ions on either side, leaving the inside of the neuron negatively charged relative to the outside. The action potential is a rapid change in polarity that moves along the nerve fiber from neuron to neuron. In order for a neuron to move from resting potential to action potential—a short-term electrical change that allows an electrical signal to be passed from one neuron to another—the neuron must be stimulated by pressure, electricity, chemicals, or another form of stimuli. The level of stimulation that a neuron must receive to reach action potential is known as the threshold of excitation, and until it reaches that threshold, nothing will happen. Different neurons are sensitive to different stimuli, although most can register pain. The action potential has several stages.

1. **Depolarization:** A stimulus starts the depolarization of the membrane. Depolarization, also referred to as the “upswing,” is caused when positively charged sodium ions rush into a nerve cell. As these positive ions rush in, the membrane of the stimulated cell reverses its polarity so that the outside of the membrane is negative relative to the inside.
2. **Repolarization.** Once the electric gradient has reached the threshold of excitement, the “downswing” of repolarization begins. The channels that let the positive sodium ion channels through close up, while channels that allow positive potassium ions open, resulting in the release of positively charged potassium ions from the neuron. This expulsion acts to restore the localized negative membrane potential of the cell, bringing it back to its normal voltage.
3. **Refractory Phase.** The refractory phase takes place over a short period of time after the depolarization stage. Shortly after the sodium gates open, they close and go into an inactive conformation. The sodium gates cannot be opened again until the membrane is repolarized to its normal resting potential. The sodium-potassium pump returns sodium ions to the outside and potassium ions to the inside. During the refractory phase this particular area of the nerve cell membrane cannot be depolarized. Therefore, the neuron cannot reach action potential during this “rest period.”

Synapses

The synapse is the junction where neurons trade information. It is not a physical component of a cell but rather a name for the gap between two cells: the presynaptic cell (giving the signal) and the postsynaptic cell (receiving the signal). There are two types of possible reactions at the synapse—chemical or electrical. During a chemical reaction, a chemical called a neurotransmitter is released from one cell into another. In an electrical reaction, the electrical charge of one cell is influenced by the charge an adjacent cell.

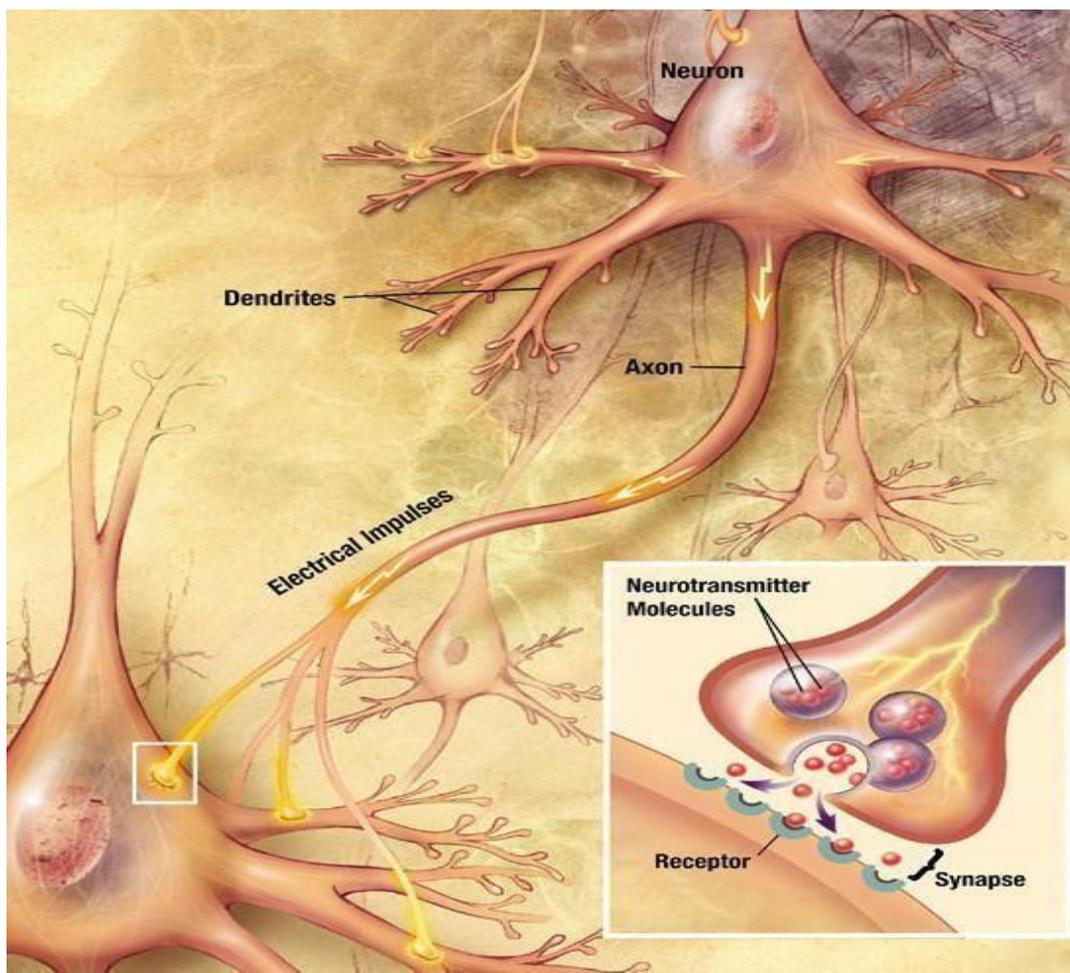
All synapses have a few common characteristics:

- **Presynaptic cell:** a specialized area within the axon of the giving cell that transmits information to the dendrite of the receiving cell.
- **Synaptic cleft:** the small space at the synapse that receives neurotransmitters.
- **G-protein coupled receptors:** receptors that sense molecules outside the cell and thereby activate signals within it.
- **Ligand-gated ion channels:** receptors that are opened or closed in response to the binding of a chemical messenger.
- **Postsynaptic cell:** a specialized area within the dendrite of the receiving cell that contains receptors designed to process neurotransmitters.

The Electrical Synapse

The stages of an electrical reaction at a synapse are as follows:

1. **Resting potential.** The membrane of a neuron is normally at rest with established concentrations of sodium ions (Na^+) and potassium ions (K^+) on either side. The membrane potential (or, voltage across the membrane) at this state is -70 mV , with the inside being negative relative to the outside.
2. **Depolarization.** A stimulus begins the depolarization of the membrane. Depolarization, also referred to as the “upswing,” occurs when positively charged sodium ions (Na^+) suddenly rush through open sodium gates into a nerve cell. If the membrane potential reaches -55 mV , it has reached the threshold of excitation. Additional sodium rushes in, and the membrane of the stimulated cell actually reverses its polarity so that the outside of the membrane is negative relative to the inside. The change in voltage stimulates the opening of additional sodium channels (called a voltage-gated ion channel), providing what is known as a positive feedback loop. Eventually, the cell potential reaches $+40\text{ mV}$, or the action potential.
3. **Repolarization.** The “downswing” of repolarization is caused by the closing of sodium ion channels and the opening of potassium ion channels, resulting in the release of positively charged potassium ions (K^+) from the nerve cell. This expulsion acts to restore the localized negative membranepotential of the cell.
4. **Refractory Phase.** The refractory phase is a short period of time after the repolarization stage. Shortly after the sodium gates open, they close and go into an inactive conformation where the cell’s membrane potential is actually even lower than its baseline -70 mV . The sodium gates cannot be opened again until the membrane has completely repolarized to its normal resting potential, -70 mV . The sodium-potassium pump returns sodium ions to the outside and potassium ions to the inside. During the refractory phase this particular area of the nerve cell membrane cannot be depolarized; the cell cannot be excited.



The Chemical Synapse

The process of a chemical reaction at the synapse has some important differences from an electrical reaction. Chemical synapses are much more complex than electrical synapses, which makes them slower, but also allows them to generate different results. Like electrical reactions, chemical reactions involve electrical modifications at the postsynaptic membrane, but chemical reactions also require chemical messengers, such as neurotransmitters, to operate.

Neuron & chemical synapse: This image shows electric impulses traveling between neurons; the inset shows a chemical reaction occurring at the synapse. A basic chemical reaction at the synapse undergoes a few additional steps:

1. The action potential (which occurs as described above) travels along the membrane of the presynaptic cell until it reaches the synapse. The electrical depolarization of the membrane at the synapse causes channels to open that are selectively permeable, meaning they specifically only allow the entry of positive sodium ions (Na^+).
2. The ions flow through the presynaptic membrane, rapidly increasing their concentration in the interior.
3. The high concentration activates a set of ion-sensitive proteins attached to vesicles, which are small membrane compartments that contain a neurotransmitter chemical.
4. These proteins change shape, causing the membranes of some "docked" vesicles to fuse with the membrane of the presynaptic cell. This opens the vesicles, which releases their neurotransmitter contents into the synaptic cleft, the narrow space between the membranes of the pre- and postsynaptic cells.
5. The neurotransmitter diffuses within the cleft. Some of it escapes, but the rest of it binds to chemical receptor molecules located on the membrane of the postsynaptic cell.
6. The binding of neurotransmitter causes the receptor molecule to be activated in some way. Several types of activation are possible, depending on what kind of neurotransmitter was released. In any case, this is the key step by which the synaptic process affects the behavior of the postsynaptic cell.
7. Due to thermal shaking, neurotransmitter molecules eventually break loose from the receptors and drift away.
8. The neurotransmitter is either reabsorbed by the presynaptic cell and repackaged for future release, or else it is broken down metabolically.

Differences Between Electrical and Chemical Synapses

- Electrical synapses are faster than chemical synapses because the receptors do not need to recognize chemical messengers. The synaptic delay for a chemical synapse is typically about 2 milliseconds, while the synaptic delay for an electrical synapse may be about 0.2 milliseconds.
- Because electrical synapses do not involve neurotransmitters, electrical neurotransmission is less modifiable than chemical neurotransmission.
- The response is always the same sign as the source. For example, depolarization of the presynaptic membrane will always induce a depolarization in the postsynaptic membrane, and vice versa for hyperpolarization.
- The response in the postsynaptic neuron is generally smaller in amplitude than the source.

The amount of attenuation of the signal is due to the membrane resistance of the presynaptic and postsynaptic neurons.

- Long-term changes can be seen in electrical synapses. For example, changes in electrical synapses in the retina are seen during light and dark adaptations of the retina.

Neurotransmitters

Neurotransmitters are chemicals that transmit signals from a neuron across a synapse to a target cell. **KEY TAKEAWAYS**

Key Points

- Neurotransmitters dictate communication between cells by binding to specific receptors and depolarizing or hyperpolarizing the cell.
- Inhibitory neurotransmitters cause hyperpolarization of the postsynaptic cell; excitatory neurotransmitters cause depolarization of the postsynaptic cell.
- Too little of a neurotransmitter may cause the overaccumulation of proteins, leading to disorders like Alzheimer's; too much of a neurotransmitter may block receptors required for proper brain function, leading to disorders like schizophrenia.
- The three neurotransmitter systems in the brain are cholinergic, amino acids, and biogenic amines.

Key Terms

- **reuptake:** The reabsorption of a neurotransmitter by a neuron after the transmission of a neural impulse across a synapse.
- **vesicle:** A membrane-bound compartment found in a cell.
- **action potential:** A short-term change in the electrical potential that travels along a cell (such as a nerve or muscle fiber); the basis of neural communication.

Neurotransmitters are chemicals that transmit signals from a neuron to a target cell across a synapse. When called upon to deliver messages, they are released from their synaptic vesicles on the presynaptic (giving) side of the synapse, diffuse across the synaptic cleft, and bind to receptors in the membrane on the postsynaptic (receiving) side. An action potential is necessary for neurotransmitters to be released, which means that neurons must reach a certain threshold of electric stimulation in order to complete the reaction. A neuron has a negative charge inside the cell membrane relative to the outside of the cell membrane; when stimulation occurs and the neuron reaches the threshold of excitement this polarity is reversed. This allows the signal to pass through the neuron. When the chemical message reaches the axon terminal, channels in the postsynaptic cell membrane open up to receive neurotransmitters from vesicles in the presynaptic cell.

Inhibitory neurotransmitters cause hyperpolarization of the postsynaptic cell (that is, decreasing the voltage gradient of the cell, thus bringing it further away from an action potential), while excitatory neurotransmitters cause depolarization (bringing it closer to an action potential). Neuro-

transmitters match up with receptors like a key in a lock. A neurotransmitter binds to its receptor and will not bind to receptors for other neurotransmitters, making the binding a specific chemical event.

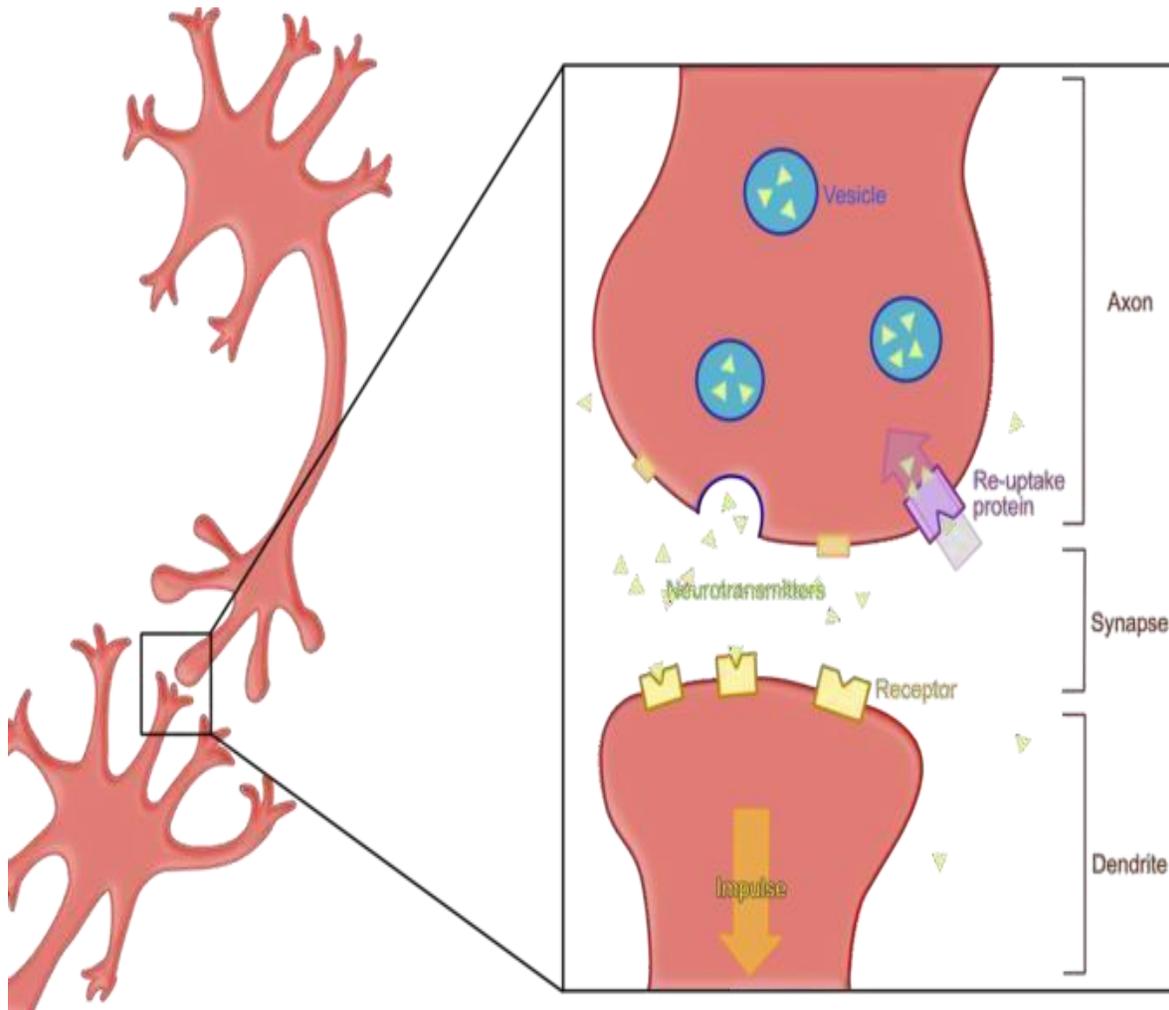
There are several systems of neurotransmitters found at various synapses in the nervous system. The following groups refer to the specific chemicals, and within the groups are specific systems, some of which block other chemicals from entering the cell and some of which permit the entrance of chemicals that were blocked before.

Cholinergic System

The cholinergic system is a neurotransmitter system of its own, and is based on the neurotransmitter acetylcholine (ACh). This system is found in the autonomic nervous system, as well as distributed throughout the brain. The cholinergic system has two types of receptors: the nicotinic receptor and the acetylcholine receptor, which is known as the muscarinic receptor. Both of these receptors are named for chemicals that interact with the receptor in addition to the neurotransmitter acetylcholine. Nicotine, the chemical in tobacco, binds to the nicotinic receptor and activates it similarly to acetylcholine. Muscarine, a chemical product of certain mushrooms, binds to the muscarinic receptor. However, they cannot bind to each others' receptors.

Amino Acids

Another group of neurotransmitters are amino acids, including glutamate (Glu), GABA (gamma-aminobutyric acid, a derivative of glutamate), and glycine (Gly). These amino acids have an amino group and a carboxyl group in their chemical structures. Glutamate is one of the 20 amino acids used to make proteins. Each amino acid neurotransmitter is its own system, namely the glutamatergic, GABAergic, and glycinergic systems. They each have their own receptors and do not interact with each other. Amino acid neurotransmitters are eliminated from the synapse by reuptake. A pump in the cell membrane of the presynaptic element, or sometimes a neighboring glial cell, clears the amino acid from the synaptic cleft so that it can be recycled, repackaged in vesicles, and released again.



The reuptake process: This illustration shows the process of reuptake, in which leftover neurotransmitters are returned to vesicles in the presynaptic cell.

Biogenic Amines

Another class of neurotransmitter is the biogenic amine, a group of neurotransmitters made enzymatically from amino acids. They have amino groups in them, but do not have carboxyl groups and are therefore no longer classified as amino acids.

Neuropeptides

A neuropeptide is a neurotransmitter molecule made up of chains of amino acids connected by peptide bonds, similar to proteins. However, proteins are long molecules while some neuropeptides are quite short. Neuropeptides are often released at synapses in combination with another neurotransmitter.

Dopamine

Dopamine is the best-known neurotransmitter of the catecholamine group. The brain includes several distinct dopamine systems, one of which plays a major role in reward-motivated behavior. Most types of reward increase the level of dopamine in the brain, and a variety of addictive drugs increase dopamine neuronal activity. Other brain dopamine systems are involved in motor control and in controlling the release of several other important hormones.

Effect on the Synapse

The effect of a neurotransmitter on the postsynaptic element is entirely dependent on the receptor protein. If there is no receptor protein in the membrane of the postsynaptic element, then the neurotransmitter has no effect. The depolarizing (more likely to reach an action potential) or hyperpolarizing (less likely to reach an action potential) effect is also dependent on the receptor. When acetylcholine binds to the nicotinic receptor, the postsynaptic cell is depolarized. However, when acetylcholine binds to the muscarinic receptor, it might cause depolarization or hyperpolarization of the target cell.

The amino acid neurotransmitters (glutamate, glycine, and GABA) are almost exclusively associated with just one effect. Glutamate is considered an excitatory amino acid because Glu receptors in the adult cause depolarization of the postsynaptic cell. Glycine and GABA are considered inhibitory amino acids, again because their receptors cause hyperpolarization, making the receiving cell less likely to reach an action potential.

The Right Dose

Sometimes too little or too much of a neurotransmitter may affect an organism's behavior or health. The underlying cause of some neurodegenerative diseases, such as Parkinson's, appears to be related to overaccumulation of proteins, which under normal circumstances would be regulated by the presence of dopamine. On the other hand, when an excess of the neurotransmitter dopamine blocks glutamate receptors, disorders like schizophrenia can occur.

The Structure of Neural Networks

The connections between neurons form a highly complex network. The basic kinds of connections between neurons are chemical synapses and electrical gap junctions, through which either chemical or electrical impulses are communicated between neurons. The method through which neurons interact with neighboring neurons usually consists of several axon terminals connecting through synapses to the dendrites on other neurons. If a stimulus creates a strong enough input signal in a nerve cell, the neuron sends an action potential and transmits this signal along its axon. The axon of a nerve cell is responsible for transmitting information over a relatively long distance, and so most neural pathways are made up of axons. Some axons are encased in a lipid-coated myelin sheath, making them appear a bright white; others that lack myelin sheaths (i.e., are unmyelinated) appear a darker beige color, which is generally called gray.

The process of synaptic transmission in neurons: Neurons interact with other neurons by sending a signal, or impulse, along their axon and across a synapse to the dendrites of a neighboring neuron. Some neurons are responsible for conveying information over long distances. For example, motor neurons, which travel from the spinal cord to the muscle, can have axons up to a meter in length in humans. The longest axon in the human body is almost two meters long in tall individuals and runs from the big toe to the medulla oblongata of the brain stem.

The Capacity of Neural Networks

The basic neuronal function of sending signals to other cells includes the capability for neurons to exchange signals with each other. Networks formed by interconnected groups of neurons are capable of a wide variety of functions, including feature detection, pattern generation, and timing. In fact, it is difficult to assign limits to the types of information processing that can be carried out

by neural networks. Given that individual neurons can generate complex temporal patterns of activity independently, the range of capabilities possible for even small groups of neurons are beyond current understanding. However, we do know that we have neural networks to thank for much of our higher cognitive functioning.

Behaviorist Approach

Historically, the predominant view of the function of the nervous system was as a stimulus-response associator. In this conception, neural processing begins with stimuli that activate sensory neurons, producing signals that propagate through chains of connections in the spinal cord and brain, giving rise eventually to activation of motor neurons and thereby to muscle contraction or other overt responses. Charles Sherrington, in his influential 1906 book *The Integrative Action of the Nervous System*, developed the concept of stimulus-response mechanisms in much more detail, and behaviorism, the school of thought that dominated psychology through the middle of the 20th century, attempted to explain every aspect of human behavior in stimulus-response terms.

Hybrid Approach

However, experimental studies of electrophysiology, beginning in the early 20th century and reaching high productivity by the 1940s, showed that the nervous system contains many mechanisms for generating patterns of activity intrinsically—without requiring an external stimulus. Neurons were found to be capable of producing regular sequences of action potentials (“firing”) even in complete isolation. When intrinsically active neurons are connected to each other in complex circuits, the possibilities for generating intricate temporal patterns become far more extensive. A modern conception views the function of the nervous system partly in terms of stimulus-response chains, and partly in terms of intrinsically generated activity patterns; both types of activity interact with each other to generate the full repertoire of behavior.

Hebbian Theory

In 1949, neuroscientist Donald Hebb proposed that simultaneous activation of cells leads to pronounced increase in synaptic strength between those cells, a theory that is widely accepted today. Cell assembly, or Hebbian theory, asserts that “cells that fire together wire together,” meaning neural networks can be created through associative experience and learning. Since Hebb’s discovery, neuroscientists have continued to find evidence of plasticity and modification within neural networks. What is The Central and Peripheral Nervous Systems – Structure and functions. Neuroplasticity ?

The Central and Peripheral Nervous Systems – Structure and functions. Neuroplasticity

The Central Nervous System

- The central nervous system consists of the brain and spinal cord.
- The brain plays a central role in the control of most bodily functions, including awareness, movements, sensations, thoughts, speech, and memory.
- Some reflex movements can occur via spinal cord pathways without the participation of brain structures.
- The spinal cord is connected to a section of the brain called the brainstem and runs through the spinal canal.

- Cranial nerves exit the brainstem.
- Nerve roots exit the spinal cord to both sides of the body.
- The spinal cord carries signals (messages) back and forth between the brain and the peripheral nerves.
- Cerebrospinal fluid surrounds the brain and the spinal cord and also circulates within the cavities (called ventricles) of the central nervous system.
- The leptomeninges surround the brain and the spinal cord.
- The cerebrospinal fluid circulates between 2 meningeal layers called the
- pia matter and
- the arachnoid
- (or pia-arachnoid membranes).
- The outer, thicker layer serves the role of a protective shield and is called the dura matter.
- The basic unit of the central nervous system is the neuron (nerve cell).
- Billions of neurons allow the different parts of the body to communicate with each other via the brain and the spinal cord.
- A fatty material called myelin coats nerve cells to insulate them and to allow nerves to communicate quickly.

Brain and Cerebrum Location

The cerebrum is the largest part of the brain and controls voluntary actions, speech, senses, thought, and memory. The surface of the cerebral cortex has grooves or infoldings (called sulci), the largest of which are termed fissures. Some fissures separate lobes. The convolutions of the cortex give it a wormy appearance. Each convolution is delimited by two sulci and is also called a gyrus (gyri in plural). The cerebrum is divided into two halves, known as the right and left hemispheres. A mass of fibers called the corpus callosum links the hemispheres. The right hemisphere controls voluntary limb movements on the left side of the body, and the left hemisphere controls voluntary limb movements on the right side of the body. Almost every person has one dominant hemisphere. Each hemisphere is divided into four lobes, or areas, which are interconnected.

- The frontal lobes are located in the front of the brain and are responsible for voluntary movement and, via their connections with other lobes, participate in the execution of sequential tasks; speech output; organizational skills; and certain aspects of behavior, mood, and memory.
- The parietal lobes are located behind the frontal lobes and in front of the occipital lobes. They process sensory information such as temperature, pain, taste, and touch. In addition, the processing includes information about numbers, attentiveness to the position of one's body parts, the space around one's body, and one's relationship to this space.
- The temporal lobes are located on each side of the brain. They process memory and auditory (hearing) information and speech and language functions.
- The occipital lobes are located at the back of the brain. They receive and process visual information.

The cortex, also called gray matter, is the most external layer of the brain and predominantly contains neuronal bodies (the part of the neurons where the DNA-containing cell nucleus is located). The gray matter participates actively in the storage and processing of information. An isolated clump of nerve cell bodies in the gray matter is termed a nucleus (to be differentiated from a

cell nucleus). The cells in the gray matter extend their projections, called axons, to other areas of the brain.

Fibers that leave the cortex to conduct impulses toward other areas are termed efferent fibers, and fibers that approach the cortex from other areas of the nervous system are termed afferent (nerves or pathways). Fibers that go from the motor cortex to the brainstem (for example, the pons) or the spinal cord receive a name that generally reflects the connections (that is, corticopontine tract for the former and corticospinal tract for the latter). Axons are surrounded in their course outside the gray matter by myelin, which has a glistening whitish appearance and thus gives rise to the term white matter.

Cortical areas receive their names according to their general function or lobe name. If in charge of motor function, the area is called the motor cortex. If in charge of sensory function, the area is called a sensory or somesthetic cortex. The calcarine or visual cortex is located in the occipital lobe (also termed occipital cortex) and receives visual input. The auditory cortex, localized in the temporal lobe, processes sounds or verbal input. Knowledge of the anatomical projection of fibers of the different tracts and the relative representation of body regions in the cortex often enables doctors to correctly locate an injury and its relative size, sometimes with great precision.

Central Structures of the Brain

The central structures of the brain include the thalamus, hypothalamus, and pituitary gland. The hippocampus is located in the temporal lobe but participates in the processing of memory and emotions and is interconnected with central structures. Other structures are the basal ganglia, which are made up of gray matter and include the amygdala (localized in the temporal lobe), the caudate nucleus, and the lenticular nucleus (putamen and globus pallidus). Because the caudate and putamen are structurally similar, neuropathologists have coined for them the collective term striatum.

- The thalamus integrates and relays sensory information to the cortex of the parietal, temporal, and occipital lobes. The thalamus is located in the lower central part of the brain (that is, upper part of the brainstem) and is located medially to the basal ganglia. The brain hemispheres lie on the thalamus. Other roles of the thalamus include motor and memory control.
- The hypothalamus, located below the thalamus, regulates automatic functions such as appetite, thirst, and body temperature. It also secretes hormones that stimulate or suppress the release of hormones (for example, growth hormones) in the pituitary gland.
- The pituitary gland is located at the base of the brain. The pituitary gland produces hormones that control many functions of other endocrine glands. It regulates the production of many hormones that have a role in growth, metabolism, sexual response, fluid and mineral balance, and the stress response.
- The ventricles are cerebrospinal fluid-filled cavities in the interior of the cerebral hemispheres.

Base of the Brain

The base of the brain contains the cerebellum and the brainstem. These structures serve complex functions. Below is a simplified version of these roles:

- Traditionally, the cerebellum has been known to control equilibrium and coordination and contributes to the generation of muscle tone. It has more recently become evident, however, that the cerebellum plays more diverse roles such as participating in some types of memory and exerting a complex influence on musical and mathematical skills.
- The brainstem connects the brain with the spinal cord. It includes the midbrain, the pons, and the medulla oblongata. It is a compact structure in which multiple pathways traverse from the brain to the spinal cord and vice versa. For instance, nerves that arise from cranial nerve nuclei are involved with eye movements and exit the brainstem at several levels. Damage to the brainstem can therefore affect a number of bodily functions. For instance, if the corticospinal tract is injured, a loss of motor function (paralysis) occurs, and it may be accompanied by other neurologic deficits, such as eye movement abnormalities, which are reflective of injury to cranial nerves or their pathways in the brainstem.
- The midbrain is located below the hypothalamus. Some cranial nerves that are also responsible for eye muscle control exit the midbrain.
- The pons serves as a bridge between the midbrain and the medulla oblongata. The pons also contains the nuclei and fibers of nerves that serve eye muscle control, facial muscle strength, and other functions.
- The medulla oblongata is the lowest part of the brainstem and is interconnected with the cervical spinal cord. The medulla oblongata also helps control involuntary actions, including vital processes, such as heart rate, blood pressure, and respiration, and it carries the corticospinal (that is, motor function) tract toward the spinal cord.

Peripheral Nervous System Function

Nerve fibers that exit the brainstem and spinal cord become part of the peripheral nervous system. Cranial nerves exit the brainstem and function as peripheral nervous system mediators of many functions, including eye movements, facial strength and sensation, hearing, and taste.

The optic nerve is considered a cranial nerve but it is generally affected in a disease of the central nervous system known as multiple sclerosis, and, for this and other reasons, it is thought to represent an extension of the central nervous system apparatus that controls vision. In fact, doctors can diagnose inflammation of the head of the optic nerve by using an ophthalmoscope, as if the person's eyes were a window into the central nervous system.

Nerve roots leave the spinal cord to the exit point between two vertebrae and are named according to the spinal cord segment from which they arise (a cervical eight nerve root arises from cervical spinal cord segment eight). Nerve roots are located anterior with relation to the cord if efferent (for example, carrying input toward limbs) or posterior if afferent (for example, to spinal cord). Fibers that carry motor input to limbs and fibers that bring sensory information from the limbs to the spinal cord grow together to form a mixed (motor and sensory) peripheral nerve. Some lumbar and all sacral nerve roots take a long route downward in the spinal canal before they exit in a bundle that resembles a horse's tail, hence its name, cauda equina.

The spinal cord is also covered, like the brain, by the pia matter and the arachnoid membranes. The cerebrospinal fluid circulates around the pia and below the outer arachnoid, and this space is also termed the subarachnoid space. The roots of the cauda equina and the rootlets that make up the nerve roots from higher segments are bathed in cerebrospinal fluid. The dura surrounds the pia-arachnoid of the spinal cord, as it does for the brain.

The neuroanatomical basis for multiple brain functions is oversimplified in the above summary. A good example is the neuroanatomical substrate for memory function. Damage to multiple areas of the brain can affect memory. These include structures such as the frontal and temporal lobes, the thalamus, the cerebellum, the putamen, mamillary bodies and fornix, and a convolution above the corpus callosum known as the cingulate gyrus. These structures are variably involved in complex processes such as the storing, processing, or retrieval of memories.

Spinal Cord Nerves

The spinal cord is an extension of the brain and is surrounded by the vertebral bodies that form the spinal column (see Multimedia File 3). The central structures of the spinal cord are made up of gray matter (nerve cell bodies), and the external or surrounding tissues are made up of white matter. Within the spinal cord are 30 segments that belong to 4 sections (cervical, thoracic, lumbar, sacral), based on their location:

- **Eight cervical segments:** These transmit signals from or to areas of the head, neck, shoulders, arms, and hands.
- **Twelve thoracic segments:** These transmit signals from or to part of the arms and the anterior and posterior chest and abdominal areas.
- **Five lumbar segments:** These transmit signals from or to the legs and feet and some pelvic organs.
- **Five sacral segments:** These transmit signals from or to the lower back and buttocks, pelvic organs and genital areas, and some areas in the legs and feet.
- **A coccygeal remnant** is located at the bottom of the spinal cord.

The Peripheral Nervous System

What exactly is the peripheral nervous system and what role does it play in the body? First, it is important to realize that the nervous system is divided into two parts: the central nervous system and the peripheral nervous system. The central nervous system includes the brain and spinal cord, while the peripheral nervous system includes all of the nerves that branch out from the brain and spinal cord and extend to other parts of the body including muscles and organs. Each part of the system plays a vital role in how information is communicated throughout the body.

What Is the Peripheral Nervous System?

The peripheral nervous system (PNS) is the division of the nervous system containing all the nerves that lie outside of the central nervous system (CNS). The primary role of the PNS is to connect the CNS to the organs, limbs, and skin. These nerves extend from the central nervous system to the outermost areas of the body. The peripheral system allows the brain and spinal cord to receive and send information to other areas of the body, which allows us to react to stimuli in our environment.

The nerves that make up the peripheral nervous system are actually the axons or bundles of axons from nerve cells or neurons. In some cases, these nerves are very small but some nerve bundles are so large that they can be easily seen by the human eye. The peripheral nervous system itself is divided into two parts: the somatic nervous system and the autonomic nervous system. Each of these components plays a critical role in how the peripheral nervous system operates.

The Somatic Nervous System

The somatic system is the part of the peripheral nervous system responsible for carrying sensory and motor information to and from the central nervous system. The somatic nervous system derives its name from the Greek word soma, which means "body." The somatic system is responsible for transmitting sensory information as well as for voluntary movement. This system contains two major types of neurons:

- **Motor neurons:** Also called efferent neurons, motor neurons carry information from the brain and spinal cord to muscle fibers throughout the body. These motor neurons allow us to take physical action in response to stimuli in the environment.
- **Sensory neurons:** Also called afferent neurons, sensory neurons carry information from the nerves to the central nervous system. It is these sensory neurons that allow us to take in sensory information and send it to the brain and spinal cord. In other words, it is the autonomic system that controls aspects of the body that are usually not under voluntary control. This system allows these functions to take place without needing to consciously think about them happening. The autonomic system is further divided into two branches:
- **Parasympathetic system:** This helps maintain normal body functions and conserve physical resources. Once a threat has passed, this system will slow the heart rate, slow breathing, reduce blood flow to muscles, and constrict the pupils. This allows us to return our bodies to a normal resting state.
- **Sympathetic system:** By regulating the flight-or-fight response,¹ the sympathetic system prepares the body to expend energy to respond to environmental threats. When action is needed, the sympathetic system triggers a response by accelerating heart rate, increasing breathing rate, boosting blood flow to muscles, activating sweat secretion, and dilating the pupils.

Structure

The peripheral nervous system is itself classified into two systems: the somatic nervous system and the autonomic nervous system. Each system contains afferent and efferent components. The **afferent** arm consists of sensory (or afferent) neurons running from receptors for stimuli to the CNS. Afferent nerves detect the external environment via receptors for external stimuli such as sight, hearing, pressure, temperature etc. Afferent nerves exist in both the somatic and autonomic nervous systems as both can use sensory signals to alter their activity.

The **efferent** arm consists of motor (or efferent) neurons running from the CNS to the effector organ. Effector organs can either be muscles or glands. The efferent nerves of the **somatic nervous system** of the PNS is responsible for voluntary, conscious control of skeletal muscles (effector organ) using motor (efferent) nerves.

The efferent nerves of the **autonomic (visceral) nervous system** control the visceral functions of the body. These visceral functions include the regulation of heart rate, digestion, salivation, urination, digestion and many more. The efferent arm of this system can be further subdivided into parasympathetic motor or sympathetic motor. The **enteric nervous system** is sometimes classified as a separate component of the autonomic nervous system and is sometimes even considered a third independent branch of the PNS.

Neuroplasticity:

The brain's ability to reorganize itself by forming new neural connections throughout life. Neuroplasticity allows the neurons (nerve cells) in the brain to compensate for injury and disease and to adjust their activities in response to new situations or to changes in their environment. Brain

reorganization takes place by mechanisms such as "axonal sprouting" in which undamaged axons grow new nerve endings to reconnect neurons whose links were injured or severed. Undamaged axons can also sprout nerve endings and connect with other undamaged nerve cells, forming new neural pathways to accomplish a needed function.

For example, if one hemisphere of the brain is damaged, the intact hemisphere may take over some of its functions. The brain compensates for damage in effect by reorganizing and forming new connections between intact neurons. In order to reconnect, the neurons need to be stimulated through activity. Neuroplasticity sometimes may also contribute to impairment. For example, people who are deaf may suffer from a continual ringing in their ears (**tinnitus**), the result of the rewiring of brain cells starved for sound. For neurons to form beneficial connections, they must be correctly stimulated. Neuroplasticity is also called brain plasticity or brain malleability.

Types Of Cortical Neuroplasticity

Developmental plasticity occurs most profoundly in the first few years of life as neurons grow very rapidly and send out multiple branches, ultimately forming too many connections. In fact, at birth, each neuron in the cerebral cortex (the highly convoluted outer layer of the cerebrum) has about 2,500 synapses. By the time an infant is two or three years old, the number of synapses is approximately 15,000 per neuron. This amount is about twice that of the average adult brain. The connections that are not reinforced by sensory stimulation eventually weaken, and the connections that are reinforced become stronger. Eventually, efficient pathways of neural connections are carved out.

Throughout the life of a human or other mammal, these neural connections are fine-tuned through the organism's interaction with its surroundings. During early childhood, which is known as a critical period of development, the nervous system must receive certain sensory inputs in order to develop properly. Once such a critical period ends, there is a precipitous drop in the number of connections that are maintained, and the ones that do remain are the ones that have been strengthened by the appropriate sensory experiences. This massive "pruning back" of excess synapses often occurs during adolescence.

Homologous area adaptation

Homologous area adaptation occurs during the early critical period of development. If a particular brain module becomes damaged in early life, its normal operations have the ability to shift to brain areas that do not include the affected module. The function is often shifted to a module in the matching, or homologous, area of the opposite brain hemisphere. The downside to this form of neuroplasticity is that it may come at costs to functions that are normally stored in the module but now have to make room for the new functions. An example of this is when the right parietal lobe (the parietal lobe forms the middle region of the cerebral hemispheres) becomes damaged early in life and the left parietal lobe takes over visuospatial functions at the cost of impaired arithmetical functions, which the left parietal lobe usually carries out exclusively. Timing is also a factor in this process, since a child learns how to navigate physical space before he or she learns arithmetic.

Compensatory masquerade

The second type of neuroplasticity, compensatory masquerade, can simply be described as the brain figuring out an alternative strategy for carrying out a task when the initial strategy cannot be followed due to impairment. One example is when a person attempts to navigate from one

location to another. Most people, to a greater or lesser extent, have an intuitive sense of direction and distance that they employ for navigation. However, a person who suffers some form of brain trauma and impaired spatial sense will resort to another strategy for spatial navigation, such as memorizing landmarks. The only change that occurs in the brain is a reorganization of preexisting neuronal networks.

Cross-modal reassignment

The third form of neuroplasticity, cross-modal reassignment, entails the introduction of new inputs into a brain area deprived of its main inputs. A classic example of this is the ability of an adult who has been blind since birth to have touch, or somatosensory, input redirected to the visual cortex in the occipital lobe (region of the cerebrum located at the back of the head) of the brain—specifically, in an area known as V1. Sighted people, however, do not display any V1 activity when presented with similar touch-oriented experiments. This occurs because neurons communicate with one another in the same abstract “language” of electrochemical impulses regardless of sensory modality. Moreover, all the sensory cortices of the brain—visual, auditory, olfactory (smell, gustatory (taste and somatosensory)—have a similar six-layer processing structure. Because of this, the visual cortices of blind people can still carry out the cognitive functions of creating representations of the physical world but base these representations on input from another sense—namely, touch. This is not, however, simply an instance of one area of the brain compensating for a lack of vision. It is a change in the actual functional assignment of a local brain region.

Map expansion

Map expansion, the fourth type of neuroplasticity, entails the flexibility of local brain regions that are dedicated to performing one type of function or storing a particular form of information. The arrangement of these local regions in the cerebral cortex is referred to as a “map.” When one function is carried out frequently enough through repeated behaviour or stimulus, the region of the cortical map dedicated to this function grows and shrinks as an individual “exercises” this function. This phenomenon usually takes place during the learning and practicing of a skill such as playing a musical instrument. Specifically, the region grows as the individual gains implicit familiarity with the skill and then shrinks to baseline once the learning becomes explicit. (Implicit learning is the passive acquisition of knowledge through exposure to information, whereas explicit learning is the active acquisition of knowledge gained by consciously seeking out information.) But as one continues to develop the skill over repeated practice, the region retains the initial enlargement.

Map expansion neuroplasticity has also been observed in association with pain in the phenomenon of phantom limb syndrome. The relationship between cortical reorganization and phantom limb pain was discovered in the 1990s in arm amputees. Later studies indicated that in amputees who experience phantom limb pain, the mouth brain map shifts to take over the adjacent area of the arm and hand brain maps. In some patients, the cortical changes could be reversed with peripheral anesthesia. What is Methods of Physiological Psychology: Invasive methods – Anatomical methods, degeneration techniques, lesion techniques, chemical methods, microelectrode studies. Non-invasive methods – EEG, Scanning methods?

Methods of Physiological Psychology: Invasive methods – Anatomical methods, degeneration techniques, lesion techniques, chemical methods, microelectrode

studies. Non-invasive methods – EEG, Scanning methods

Methods of Physiological Psychology: Invasive methods

As a generally noninvasive subset of neuroscience methods, psychophysiological methods are used across a variety of disciplines in order to answer diverse questions about psychology, both mental events and behavior. Many different techniques are classified as psychophysiological. Each technique has its strengths and weaknesses, and knowing them allows researchers to decide what each offers for a particular question. Additionally, this knowledge allows research consumers to evaluate the meaning of the results in a particular experiment.

Learning Objectives

- Learn what qualifies as psychophysiology within the broaderfield of neuroscience.
- Review and compare several examples of psychophysiologicalmethods.
- Understand advantages and disadvantages of differentpsychophysiological methods.

History

In the mid-19th century, a railroad worker named Phineas Gage was in charge of setting explosive charges for blasting through rock in order to prepare a path for railroad tracks. He would lay the charge in a hole drilled into the rock, place a fuse and sand on topof the charge, and pack it all down using a tamping iron (a solid iron rod approximately one yard long and a little over an inch in diameter). On a September afternoon when Gage was performing this task, his tamping iron caused a spark that set off the explosive prematurely, sending the tamping iron flying through the air.

Unfortunately for Gage, his head was above the hole and the tamping iron entered the side of his face, passed behind his left eye, and exited out of the top of his head, eventually landing 80 feet away. Gage lost a portion of his left frontal lobe in the accident, but survived and lived for another 12 years. What is most interesting from a psychological perspective is that Gage’s personality changedas a result of this accident. He became more impulsive, he had trouble carrying out plans, and, at times, he engaged in vulgarprofanity, which was out of character. This case study leads one to believe that there are specific areas of the brain that are associated with certain psychological phenomena. When studying psychology, the brain is indeed an interesting source of information. Although it would be impossible to replicate the type of damage done to Gagein the name of research, methods have developed over the years that are able to safely measure different aspects of nervous system activity in order to help researchers better understand psychologyas well as the relationship between psychology and biology.

Introduction

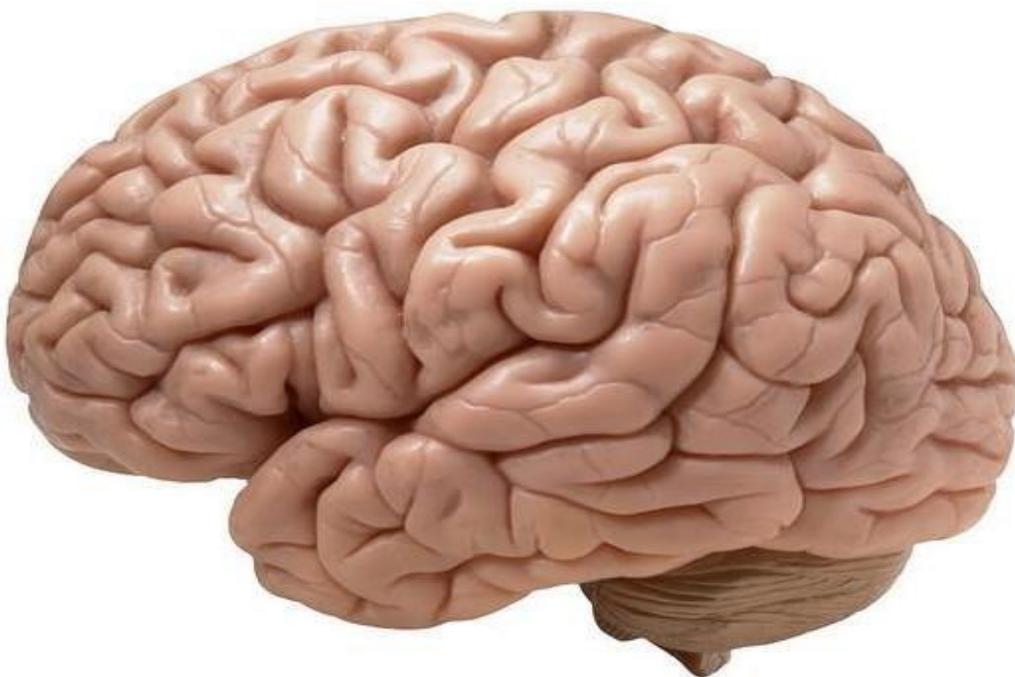
Psychophysiology is defined as any research in which the dependent variable (what the researcher measures) is a physiological measure, and the independent variable (what the researcher manipulates) is behavioral or mental. In most cases the work is done noninvasively with awake human participants. Physiological measures take many forms and range from blood flowor neural activity in the brain to heart rate variability and eye movements. These measures can provide information about processes including emotion, cognition, and the interactions between them. In these ways, physiological measures offer a very flexible set of tools for researchers to answer

questions about behavior, cognition, and health.

Psychophysiological methods are a subset of the very large domain of **neuroscience methods**. Many neuroscience methods are **invasive**, such as involving **lesions** of neural tissue, injection of neutrally active chemicals, or manipulation of neural activity via electrical stimulation. The present survey emphasizes **noninvasive** methods widely used with human subjects.

Crucially, in examining the relationship between physiology and overt behavior or mental events, psychophysiology does not attempt to replace the latter with the former. As an example, happiness is a state of pleasurable contentment and is associated with various physiological measures, but one would not say that those physiological measures are happiness. We can make inferences about someone's cognitive or emotional state based on his or her self-report, physiology, or overt behavior. Sometimes our interest is primarily in inferences about internal events and sometimes primarily in the physiology itself. Psychophysiology addresses both kinds of goals.

Central Nervous System (CNS)



The adult human brain only makes up about 2% (i.e. \approx 3 pounds) of the average adult's weight, but it uses 20% of the body's energy! [Image: _DJ_, <https://goo.gl/eHPH5L>, CC BY-SA 2.0, <https://goo.gl/rxiUsF>] This module provides an overview of several popular psychophysiological methods, though it is far from exhaustive. Each method can draw from a broad range of data-analysis strategies to provide an even more expansive set of tools. The psychophysiological methods discussed below focus on the central nervous system. Structural magnetic resonance imaging (sMRI) is a noninvasive technique that allows researchers and clinicians to view anatomical structures within a human. The participant is placed in a magnetic field that may be 66,000 times greater than the Earth's magnetic field, which causes a small portion of the atoms in his or her body to line up in the same direction. The body is then pulsed with low-energy radio frequencies that are absorbed by the atoms in the body, causing them to tip over.

As these atoms return to their aligned state, they give off energy in the form of harmless electromagnetic radiation, which is measured by the machine. The machine then transforms the measured energy into a three-dimensional picture of the tissue within the body. In psychophysiology research, this image may be used to compare the size of structures in different groups of people (e.g., are areas associated with pleasure smaller in individuals with depression?) or to increase the accuracy of spatial locations as measured with functional magnetic resonance imaging (fMRI).

Peripheral Nervous System

The psychophysiological methods discussed above focus on the central nervous system. Considerable research has also focused on the **peripheral nervous system**. These methods include skin conductance, cardiovascular responses, muscle activity, pupil diameter, eye blinks, and eye movements. Skin conductance, for example, measures the electrical conductance (the inverse of resistance) between two points on the skin, which varies with the level of moisture. Sweat glands are responsible for this moisture and are controlled by the **sympathetic nervous system (SNS)**. Increases in skin conductance can be associated with changes in psychological activity. For example, studying skin conductance allows a researcher to investigate whether psychopaths react to fearful pictures in a normal way. Skin conductance provides relatively poor temporal resolution, with the entire response typically taking several seconds to emerge and resolve. However, it is an easy way to measure SNS response to a variety of stimuli.

Cardiovascular measures include heart rate, heart rate variability, and blood pressure. The heart is innervated by the **parasympathetic nervous system (PNS)** and SNS. Input from the PNS decreases heart rate and contractile strength, whereas input from the SNS increases heart rate and contractile strength. Heart rate can easily be monitored using a minimum of two electrodes and is measured by counting the number of heartbeats in a given time period, such as one minute, or by assessing the time between successive heartbeats. Psychological activity can prompt increases and decreases in heart rate, often in less than a second, making heart rate a sensitive measure of cognition.

In recent years a wide range of experimental methods has become available to advance the understanding of the structure and function of human auditory cortex. Among the noninvasive approaches are electroencephalography (EEG) and magnetoencephalography (MEG), which record cortical activity at a distance using electrodes glued to the scalp or from sensors distributed around the head, and brain-imaging methods based on changes in cerebral blood flow, including positron emission tomography (PET) and functional magnetic resonance imaging (fMRI). Invasive approaches involve electrophysiological recording from and electrically stimulating or locally cooling cortex directly, usually in neurosurgical patients undergoing diagnosis and treatment of medically intractable epilepsy.

Brief Historic Overview

Progress in invasive human brain research has paralleled advances in the field of functional neurosurgery, electronic engineering, computer technology, and signal processing. Although technical aspects of invasive human brain research have changed markedly over the years, the importance of a multidisciplinary research team, pioneered by neurosurgeon Wilder Penfield, has remained. Today, research of this kind draws heavily on the disciplines of anatomy, physiology, psychophys-

ics, neuropsychology, radiology, theoretical modeling, statistics, acoustics, signal processing, electronic engineering, and computer programming.

With the awake patient's brain exposed, Penfield and his team carefully recorded bodily movements and verbal reports of sensations evoked by an electrical stimulus delivered to a cortical site through a hand-held stimulator. The anatomical location of each stimulated cortical locus was documented on a high-resolution intraoperative photograph of the brain surface. The results provided the first direct, systematic evidence of how human cerebral cortex is functionally organized.

Contemporary Research Research Subjects

Invasive studies of auditory cortex in humans are carried out in neurosurgical patients, the vast majority of whom are being treated for medically intractable epilepsy. Epilepsy is a common neurological disorder that affects approximately 50 million people worldwide (World Health Organization, 2005). These individuals are at risk of losing consciousness suddenly and without warning and thus often are unable to operate a motor vehicle or hold a job that requires sustained vigilance and attention. There is also evidence that persistent seizure activity may lead to structural brain damage (Bonilha et al., 2006; Bernhardt et al., 2009). It is estimated that in the United States alone, more than 400,000 individuals with epilepsy continue to have seizures despite receiving appropriate medical treatment (Engel, 2001). A subset of this medically refractory patient population can be treated effectively with surgery that removes brain tissue that is the source of the seizure activity.

These patients also are ideal subjects for invasive brain research. Third, their seizure focus must be localized to a circumscribed portion of the brain that can be safely removed surgically. Making this latter determination is the most challenging aspect of the presurgical evaluation process, which includes EEG recording, anatomical magnetic resonance imaging (MRI), and formal neuropsychological testing. The patient's history and test data are discussed at a multidisciplinary epilepsy surgery conference where a consensus is sought regarding whether the patient is a candidate for surgery, and, if so, the type of operation that should be performed. Surgical patients then wishing to participate in research are given a detailed explanation of the planned research protocols and provide informed consent before becoming a "research subject" and undergoing additional "research only" preoperative testing.

Validity of Invasive Recordings

Although these invasive studies are intended to provide insights into the functional organization of normal human auditory cortex, interpreting the results obtained is done within the context of repeated seizure activity experienced by the study patients, often over periods of years, as well as the present and long-term use of multiple antiepileptic drugs. Surgical patients serving as research subjects are only those diagnosed with a focal seizure disorder. The seizure focus is typically localized to the mesial portion of the temporal lobe, including the hippocampus, where anatomical malformations have been well documented in individuals with drug resistant temporal lobe epilepsy (Gloor, 1991). Thalamic atrophy is reported to be most intense in thalamic nuclei having strong connections with limbic structures (Bonilha et al., 2006).

Epileptic discharges that occasionally invade cortex under study from a distant seizure focus are routinely detected and excluded from analyses. There is also evidence that in addition to mesial

temporal malformations there is progressive atrophy of temporopolar, orbitofrontal, insular, and parietal areas (Bernhardt et al., 2009) as well as widespread thinning of neocortex, including lateral temporal regions (Bonilha et al., 2006 ; Bernhardt et al., 2010) that are considered to be auditory or auditory-related cortex. Thus, one cannot rule out the possibility that pathological processes associated with seizure disorders influence activity recording from distant cortical sites. We also note, however, that data obtained from the auditory core in particular bear a striking resemblance to those recorded from core cortex in the monkey (Fishman et al., 2001 ; Steinschneider et al., 2005 ; Ray et al., 2008 ; Brugge et al., 2009), suggesting that functional organization and certain stimulus–response relationships found in this area have been relatively spared.

Summary

The methodology of invasive research of human auditory cortex has made tremendous progress since the early studies of Penfield and his colleagues. These developments have paralleled the strides made in developing noninvasive imaging and electrophysiological recording methods. By employing invasive and noninvasive approaches in complementary ways to studies of the functional organization of auditory cortex, the knowledge gained promises to be far greater than that obtainable by relying on any one method alone. Despite advances, however, technical shortcomings continue to impose limitations on invasive cortical electrophysiological recording and stimulation as research tools.

Chronically implanted electrode arrays are tethered to head-mounted connectors that are, in turn, connected to external electronic instruments. Current data acquisition systems and surgical techniques allow for extensive (>200 contacts) electrode coverage making the external cables bulky and sometimes uncomfortable for the patient. External electrical (power line) noise easily coupled to wires often introduces unwanted interference during recording sessions.

Wires can, and do, break, especially during seizures, resulting in loss of both clinical and research data. All of these considerations have a direct impact on the conduct and outcome of research, which in turn relate directly to patient safety and successful diagnosis of brain disorders and to successful development of neural prostheses.

Anatomical methods

Anatomy / Physiological Function X-ray picture. CAT scanning was invented in 1972 by the British engineer Godfrey N. Hounsfield and the South African (later American) physicist Alan Cromack. CAT (Computed Axial Tomography) is an x-ray procedure which combines many x-ray images with the aid of a computer to generate cross-sectional views, and when needed 3D images of the internal organs and structures of the human body. A large donut-shaped x-ray machine takes x-ray images at many different angles around the body. Those images are processed by a computer to produce cross-sectional picture of the body. In each of these pictures the body is seen as an x-ray 'slice' of the body, which is recorded on a film. This recorded image is called a tomogram.

CAT scans are performed to analyze, for example, the head, where traumatic injuries (such as blood clots or skull fractures), tumors, and infections can be identified. In the spine the bony structure of the vertebrae can be accurately defined, as can the anatomy of the spinal cord. CAT scans are also extremely helpful in defining body organ anatomy, including visualizing the liver, gallbladder, pancreas, spleen, aorta, kidneys, uterus, and ovaries. The amount of radiation a person receives during a CAT scan is minimal. In men and non-pregnant women it has not been shown to produce any adverse effects. However, doing a CAT test hides some risks. If the subject

or the patient is pregnant it maybe recommended to do another type of exam to reduce the possible risk of exposing her fetus to radiation. Also in cases of asthma or allergies it is recommended to avoid this type of scanning. Since the CAT scan requires a contrast medium, there's a slight risk of an allergic reaction to the contrast medium. Having certain medical conditions; Diabetes, asthma, heart disease, kidney problems or thyroid conditions also increases the risk of a reaction to contrast medium.

MRI

Although CAT scanning was a breakthrough, in many cases it was substituted by magnetic resonance imaging (MRI), a method of looking inside the body without using x-rays, harmful dyes or surgery. Instead, radio waves and a strong magnetic field are used in order to provide remarkably clear and detailed pictures of internal organs and tissues. MRI head side

History and Development of MRI

MRI is based on a physics phenomenon called nuclear magnetic resonance (NMR), which was discovered in the 1930s by Felix Bloch (working at Stanford University) and Edward Purcell (from Harvard University). In this resonance, magnetic field and radio waves cause atoms to give off tiny radio signals. In the year 1970, Raymond Damadian, a medical doctor and research scientist, discovered the basis for using magnetic resonance imaging as a tool for medical diagnosis. Four years later a patent was granted, which was the world's first patent issued in the field of MRI. In 1977, Dr. Damadian completed the construction of the first "whole-body" MRI scanner, which he called the "Indomitable". The medical use of magnetic resonance imaging has developed rapidly. The first MRI equipment in healthcare was available at the beginning of the 1980s. In 2002, approximately 22,000 MRI scanners were in use worldwide, and more than 60 million MRI examinations were performed.

A full size MRI-Scanner

Common Uses of the MRI Procedure Because of its detailed and clear pictures, MRI is widely used to diagnose sports-related injuries, especially those affecting the knee, elbow, shoulder, hip and wrist. Furthermore, MRI of the heart, aorta and blood vessels is a fast, non-invasive tool for diagnosing artery disease and heart problems. The doctors can even examine the size of the heart-chambers and determine the extent of damage caused by a heart disease or a heart attack. Organs like lungs, liver or spleen can also be examined in high detail with MRI. Because no radiation exposure is involved, MRI is often the preferred diagnostic tool for examination of the male and female reproductive systems, pelvis and hips and the bladder.

Risks

An undetected metal implant may be affected by the strong magnetic field. MRI is generally avoided in the first 12 weeks of pregnancy. Scientists usually use other methods of imaging, such as ultrasound, on pregnant women unless there is a strong medical reason to use MRI.

PPT MR III

Reconstruction of nerve fibers

There has been some further development of the MRI: The DT-MRI (diffusion tensor magnetic resonance imaging) enables the measurement of the restricted diffusion of water in tissue and gives a 3-dimensional image of it. History: The principle of using a magnetic field to measure

diffusion was already described in 1965 by the chemist Edward O. Stejskal and John E. Tanner. After the development of the MRI, Michael Moseley introduced the principle into MR Imaging in 1984 and further fundamental work was done by Dennis LeBihan in 1985. In 1994 the engineer Peter J. Basser published optimized mathematical models of an older diffusion-tensor model. This model is commonly used today and supported by all new MRI-devices.

The DT-MRI technique takes advantage of the fact that the mobility of water molecules in brain tissue is restricted by obstacles like cell membranes. In nerve fibers mobility is only possible alongside the axons. So measuring the diffusion gives rise to the course of the main nerve fibers. All the data of one diffusion-tensor are too much to process in a single image, so there are different techniques for visualization of different aspects of this data: - Cross section images - tractography (reconstruction of main nerve fibers) - tensor glyphs (complete illustration of diffusion-tensor information) The diffusion manner changes by patients with specific diseases of the central nervous system in a characteristic way, so they can be discerned by the diffusion-tensor technique. Diagnosis of apoplectic strokes and medical research of diseases involving changes of the white matter, like Alzheimer's disease or Multiple sclerosis are the main applications. Disadvantages of DT-MRI are that it is far more time consuming than ordinary MRI and produces large amounts of data, which first have to be visualized by the different methods to be interpreted.

fMRI

The fMRI (Functional Magnetic Resonance) Imaging is based on the Nuclear magnetic resonance (NMR). The way this method works is the following: All atomic nuclei with an odd number of protons have a nuclear spin. A strong magnetic field is put around the tested object which aligns all spins parallel or antiparallel to it. There is a resonance to an oscillating magnetic field at a specific frequency, which can be computed in dependence on the atom type (the nuclei's usual spin is disturbed, which induces a voltage $s(t)$, afterwards they return to the equilibrium state). At this level different tissues can be identified, but there is no information about their location. Consequently the magnetic field's strength is gradually changed, thereby there is a correspondence between frequency and location and with the help of Fourier analysis we can get one-dimensional location information. Combining several such methods as the Fourier analysis it is possible to get a 3D image.

fMRI picture

The central idea for fMRI is to look at the areas with increased blood flow. Hemoglobin disturbs the magnetic imaging, so areas with an increased blood oxygen level dependant (BOLD) can be identified. Higher BOLD signal intensities arise from decreases in the concentration of deoxygenated haemoglobin. An fMRI experiment usually lasts 1-2 hours. The subject will lie in the magnet and a particular form of stimulation will be set up and MRI images of the subject's brain are taken. In the first step a high resolution single scan is taken. This is used later as a background for highlighting the brain areas which were activated by the stimulus. In the next step a series of low resolution scans are taken over time, for example, 150 scans, one every 5 seconds. For some of these scans, the stimulus will be presented, and for some of the scans, the stimulus will be absent. The low resolution brain images in the two cases can be compared, to see which parts of the brain were activated by the stimulus. The rest of the analysis is done using a series of tools which correct distortions in the images, remove the effect of the subject moving their head during the experiment, and compare the low resolution images taken when the stimulus was off with those taken when it was on. The final statistical image shows up bright in those parts of the brain which were

activated by this experiment. These activated areas are then shown as coloured blobs on top of the original high resolution scan. This image can also be rendered in 3D.

fMRI has moderately good spatial resolution and bad temporal resolution since one fMRI frame is about 2 seconds long. However, the temporal response of the blood supply, which is the basis of fMRI, is poor relative to the electrical signals that define neuronal communication. Therefore, some research groups are working around this issue by combining fMRI with data collection techniques such as electroencephalography (EEG) or magnetoencephalography (MEG), which has much higher temporal resolution but rather poorer spatial resolution.

PET

Positron emission tomography, also called PET imaging or a PET scan, is a diagnostic examination that involves the acquisition of physiologic images based on the detection of radiation from the emission of positrons. It is currently the most effective way to check for cancer recurrences. Positrons are tiny particles emitted from a radioactive substance administered to the patient. This radiopharmaceutical is injected to the patient and its emissions are measured by a PET scanner. A PET scanner consists of an array of detectors that surround the patient. Using the gamma ray signals given off by the injected radionuclide, PET measures the amount of metabolic activity at a site in the body and a computer reassembles the signals into images. PET's ability to measure metabolism is very useful in diagnosing Alzheimer's disease, Parkinson's disease, epilepsy and other neurological conditions, because it can precisely illustrate areas where brain activity differs from the norm. It is also one of the most accurate methods available to localize areas of the brain causing epileptic seizures and to determine if surgery is a treatment option. PET is often used in conjunction with an MRI or CT scan through "fusion" to give a full three-dimensional view of an organ.

Degeneration techniques

The hippocampus was stimulated with sufficient voltage to produce four negative peaks in a response wave recorded from the dorsal septum. The peaks had latencies of 5, 12, 25 and 50 msec, respectively. Transection of the fornix body with a scalpel eliminated the entire wave complex. Removal by suction of the postsplenial gyrus, gyrus cinguli and olfactory tubercle had little or no effect on the wave complex. Bilateral electrolytic coagulation of the anterior thalamic nuclei did not affect the wave complex.

Suction removal of the suprasylvian and ectosylvian gyri eliminated the long latency responses. Following lesions in the septum and body of the fornix, degeneration was observed in the fornix longus, the ventral surface of the corpus callosum and the corona radiata. Terminals were observed in the suprasylvian and ectosylvian gyri. Small cautery lesions in these gyri resulted in degeneration in the contralateral ectosylvian gyrus, fornix longus, body and columns of the fornix, hippocampus, mamillary body and thalamus. Degeneration including terminals was also seen in other limbic structures. We conclude that the hippocampus, in addition to its direct connections to the septum, has indirect projection to the septum via the suprasylvian and ectosylvian gyri.

The corticopetal connections are perhaps collaterals of other direct projection targets of the hippocampus to the septum, mamillary body, and anterior nuclei. Direct corticofugal connections to the septum, hippocampus and other structures are collaterals from direct contralateral cortico-cortical projections of the suprasylvian and ectosylvian gyri. Such connections perhaps influence

overt behavior by mediating secondary cues; or exert an influence on drive mechanisms through the posterior hypothalamus.

Lesion method

In the lesion method, patients with brain damage are examined to determine which brain structures are damaged and how this influences the patient's behavior. Researchers attempt to correlate a specific brain area to an observed behavior by using reported experiences and research observations. Researchers may conclude that the loss of functionality in a brain region causes behavioral changes or deficits in task performance. For example, a patient with a lesion in the parietal-temporal-occipital association area will exhibit agraphia, a condition in which he/she is not able to write, despite having no deficits in motor ability. If damage to a particular brain region (structure X) is shown to correlate with a specific change in behavior (behavior Y), researchers may deduce that structure X has a relation to behavior Y.

In humans, lesions are most often caused by tumors or strokes. Through current brain imaging technologies, it is possible to determine which area was damaged during a stroke. Loss of function in the stroke victim may then be correlated with that damaged brain area. While lesion studies in humans have provided key insights into brain organization and function, lesions studies in animals offer many advantages.

First, animals used in research are reared in controlled environmental conditions that limit variability between subjects. Secondly, researchers are able to measure task performance in the same animal, before and after a lesion. This allows for within-subject comparison. And third the control groups can be watched who either did not undergo surgery or who did have surgery in another brain area. These benefits also increase the accuracy of the hypothesis being tested which is more difficult in human research because the before-after comparison and control experiments drop out.

Visualization of iron rod passing through brain of Phineas Gage

To strengthen conclusions regarding a brain area and task performance, researchers may perform double dissociation. The goal of this method is to prove that two dissociations are independent. Through comparison of two patients with differing brain damage and contradictory disease patterns, researchers may localize different behaviors to each brain area. Broca's area is a region of the brain responsible for language processing, comprehension and speech production. Patients with a lesion in Broca's area will exhibit Broca's aphasia or non-fluent aphasia. These patients are unable to speak fluently; a sentence produced by a patient with damage to the Broca's area may sound like: "I ... er ... wanted ... ah ... well ... I ... wanted to ... er ... go surfing ... and ..er ... well...". On the other hand, Wernicke's area is responsible for speech comprehension. A patient with a lesion in this area has Wernicke's aphasia. They may be able to produce language, but lack the ability to produce meaningful sentences. Patients may produce 'word salad': " I then did this chingo for some hours after my dazi went through meek and been sharko". Patients with Wernicke's aphasia are often unaware of speech deficits and may believe that they are speaking properly.

Certainly one of the famous "lesion" cases was that of Phineas Gage. On 13 September 1848 Gage, a railroad construction foreman, was using an iron rod to tamp an explosive charge into a body of rock when premature explosion of the charge blew the rod through his left jaw and out the

top of his head. Miraculously, Gage survived, but reportedly underwent a dramatic personality change as a result of destruction of one or both of his frontal lobes. The uniqueness of Gage case (and the ethical impossibility of repeating the treatment in other patients) makes it difficult to draw generalizations from it, but it does illustrate the core idea behind the lesion method. Further problems stem from the persistent distortions in published accounts of Gage—see the Wikipedia article Phineas Gage.

Chemical methods

Lesion method

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- Most commonly used technique today.
- Instead of an electrode, use a cannula or tube.
- Allows you to place chemicals in place where they can kill or influence neurons.

Neurotoxins

- 6-Hydroxydopamine (6-HDA)
- Destroys dopamine neurons but leaves other neurons alone.
- Advantage: Allows you to only kill one type of neuron.
- Kanic Acid • Destroys somas (cell bodies) of neurons, but leaves axon tracts from other neurons alone.

Advantage:

Can kill neurons in one area, but does not disturb neuron tracts from other areas

Chemical Stimulation Techniques.

- Are the opposite of chemical lesioning
- Researcher may stimulate neurons by putting in a neurotransmitter.
- May also put in agonists (analogs of neurotransmitters that behave like them).
- May put in compounds with unknown effects.
- General Cannulation Procedures
- Make a trephine hole.
- Insert cannula with stereotaxic device.
- Cement in place with dental cement.
- Allow animal to recover and behave normally.
- Later, deliver compound by injection (usually when the animal is behaving).
- Observe the animal.

Disadvantage

- Over time the area fills up with the chemical.
- Solution: Use a push-pull technique.

Microelectrode studies

Microelectrodes are electrodes with tip areas of the order of micrometers, i.e., so small that they do not induce significant damage in the sample to be tested. Such requirements are especially important in living tissue, where microelectrodes have found their widest application; for intracellular recordings tip diameters less than 1 μm are required. Microelectrodes can also be used in combination with recent techniques of molecular biology.

Microelectrodes are basically of four types: glass micropipettes, ion-selective microelectrodes, solid-state microelectrodes, and enzyme microelectrodes (Figure 1). Glass micropipettes are used to record steady-state (DC) and alternating (AC) electrical potentials. If the glass micropipette is plugged with an ion-selective membrane, the microelectrode will record a potential that is proportional to the external activity of the ion to which the membrane is sensitive. Metal microelectrodes are well suited to recording AC potentials in situations where mechanical strength is required. Metal microelectrodes can also be used for cyclic voltammetry or amperometry purposes. If a metal microelectrode made from an inert metal or carbon is maintained at a given potential, the current can only pass the solution–electrode interphase if electrons can be provided or taken up by the chemical processes at the electrode surface. In cyclic voltammetry the voltage between the metal microelectrode and the reference electrode is varied in a cyclical manner. The voltage at which current can flow and the magnitude of the currents will characterize the chemical composition of the external media. Ambient oxygen concentrations can be measured in this way as the current flow obtained at a voltage of 600 mV relative to an Ag/AgCl reference electrode. If the electrode is prepared with specific enzymes attached to the tip area, it can be used to record substrates that in themselves do not participate in redox processes, e.g., glucose.

Calcium in Living Cells

Microelectrode Pulling and Silanization MEs can be prepared “on-demand” and in “batch” methods. The first method consists in preparing (i.e., pulling and silanizing) MEs on the experimental day, which has the obvious advantage of having “freshly” prepared electrodes and of being able to manufacture as many as desired a day. Protocols have been described (reviewed in Ammann, 1986). The batch method that we use consists of preparing a batch of MEs that can be kept for several days in a dry, dust-proof container. MEs are pulled on a programmable horizontal stage puller (Model P80 PC or comparable, Sutter Instruments, USA). By trial-and-error, and according to the type of biological preparations studied, a satisfactory shape of ME can be found. However, several aspects of ME pulling have to be taken into account when designing its shape.

As ion-selective MEs have an intrinsically high resistance (i.e., > 50–100 G Ω), the signal-to-noise ratio has to be minimized. This can be achieved in two ways: the first, and most obvious, is to increase the tip diameter, within certain limits, which are dictated by the size of the cell type. In our case, we impale cardiac cells in whole muscle. Cell length is typically between 50 and 150 μm and tip diameters less than 0.5 μm are needed. However, there is a trade-off between tip diameter and detection limit of the electrode (see below).

That is, increasing tip diameter improves electrode response (in terms of detection limit and speed of response), but is more likely to damage the cell during impalement. Another simple way to decrease the resistance is to decrease the length of the ME shank. This further helps to reduce

capacitative artifacts, that are encountered when the level of physiological solution fluctuates in the experimental bath (Vaughan-Jones and Kaila, 1986), and also helps electrolyte filling (see below). In contracting muscular preparations, the shank should also possess some flexibility to avoid dislodging of the ME during a contraction.

Electrochemical arrays

Microelectrodes are employed to induce electrochemical reactions resulting in the production of an acid, which is required to iteratively deblock the 5'-DMTr groups of growing DNA chains (Egeland and Southern, 2005). The acid is produced only at specified sites by electrochemical oxidation of hydroquinone using individually addressable microelectrodes. As shown in Figure 12, the diffusion of the acid to its intended location on the DNA array is controlled by an adjacent cathode, which prevents the 5'-DMTr deblocking of neighboring sites by consuming any diffused acid.

Summary

MER has a long history in the experimental study and clinical treatment of movement disorders, particularly to delineate the anatomic relationships for targeting. MER offers a degree of precision unparalleled by any other implantation technology and can allow for correction of stereotactic targeting error and provide confirmation that the physiologic target has been identified. Improvements in imaging and stereotactic technology have mitigated some of these benefits, and MER may be associated with increased complexity and risk of complications without necessarily improving outcome. Although excellent outcomes have been reported with and without MER, a direct comparison has never been performed. With the advent of new technologies for intraoperative targeting, the role of MER in the stereotactic implantation of DBS electrodes is likely to continue to evolve.

Non-invasive methods – EEG

Researchers working on the field of **Neuroscience** have surely sometimes thought about this question. It might sound like Sci-Fi for the common laymen, but **neuro-implants** are a reality nowadays. In this post I would like to give an introduction to the different brain recording techniques and comment the pros and cons of **invasive vs. non-invasive recording techniques**. An **electroencephalogram (EEG)** is the recording of the brain electrical activity. A set of electrodes are placed on the scalp of the subject. This technique is **non-invasive** since no surgery is required. **EEG** is a fast and cheap technique. The main drawback is that by recording the electrical activity far away from the source (i.e. the neurones inside the skull), the signal we pick up is distorted and its amplitude reduced. Moreover **EEG** is often contaminated with artefacts.

The next technique in the increasing invasiveness scale is called **Electrocorticogram (ECoG)**. This technique requires opening the skull of the subject and placing an electrode array on the exposed brain. The quality of the signal (in terms of distortion and amplitude) is much better than **EEG**, but obviously surgery is required. In principle, this technique does not damage the brain, or at least not too much. It is often used in severe epileptic patients before undergoing surgery to localise the brain focus of the seizures.

The most invasive technique is called **deep brain recording**. In this case a **microelectrode** is placed deep inside the brain. This procedure destroys the neurones it finds in its way irreversibly. The advantage of this technique is that we can record signals from very well defined spatial loca-

tions. An important use of this technique, together with **deep brain stimulation** (i.e. rather than recording, you can also use the same electrodes to inject electrical currents), is in the treatment of Parkinson's disease patients. After stimulating deep brain areas, the patients greatly improve their motor skills.

A very interesting and popular application, the so-called **brain computer interface (BCI)**, uses brain activity to control external actuators. In order for a **BCI** to be reliable, we need a reliable brain recording.

Key Points

- Neuroimaging, or brain scanning, includes the use of various techniques to either directly or indirectly image the structure, function, or pharmacology of the brain.
- Neuroimaging falls into two broad categories: structural imaging and functional imaging.
- Electroencephalography (EEG) is used to show brain activity under certain psychological states, such as alertness or drowsiness.
- Positron emission tomography (PET) scans show brain processes by using the sugar glucose in the brain to illustrate where neurons are firing.
- Magnetic resonance imaging (MRI) scans use echo waves to discriminate among grey matter, white matter, and cerebrospinal fluid.
- Functional magnetic resonance imaging (fMRI) scans are a series of MRIs measuring brain function via a computer's combination of multiple images taken less than a second apart.

Key Terms

- **conductivity**: The ability of a material to conduct electricity, heat, fluid, or sound.
- **magnetic field**: A condition in the space around a magnet or electric current in which there is a detectable magnetic force and two magnetic poles are present.

Neuroimaging falls into two broad categories:

1. Structural imaging, which deals with the structure of the brain and the diagnosis of large-scale intracranial disease (such as a tumor), as well as injury.
2. Functional imaging, which is used to diagnose metabolic diseases and lesions on a finer scale (such as Alzheimer's disease), and also for neurological and cognitive-psychology research. Functional imaging allows the brain's information processing to be visualized directly, because activity in the involved area of the brain increases metabolism and "lights up" on the scan. Four of the most common types of brain scans are EEG, PET, MRI, and fMRI.'

Electroencephalography (EEG)

Electroencephalography (EEG) is used to show brain activity in certain psychological states, such as alertness or drowsiness. It is useful in the diagnosis of seizures and other medical problems that involve an overabundance or lack of activity in certain parts of the brain. To prepare for an EEG, electrodes are placed on the face and scalp. After placing each electrode in the right position, the electrical potential of each electrode can be measured. According to a person's state (waking, sleeping, etc.), both the frequency and the form of the EEG signal differ. Patients who suffer from epilepsy show an increase of the amplitude of firing visible on the EEG record. The disadvantage of EEG is that the electric conductivity – and therefore the measured electrical po-

tentials—may vary widely from person to person and also over time, due to the natural conductivities of other tissues such as brain matter, blood, and bones. Because of this, it is sometimes unclear exactly which region of the brain is emitting a signal.

Scanning methods Introduction

The analytical operation of miniaturized voltammetric sensors above, at, and inside cultured or isolated living cells, living cell clusters and macro- or microstructures of immobilized bio-(macro-)molecules for sensitive local determination of biological activity is a unique strategy across disciplines. The aim is to inspect, on a fundamental level, physiological, pathological and molecular life science phenomena with high spatial and temporal resolution. The output of the bioanalysis using micro- and nanoelectrode voltammetry is data and knowledge generation in support of advancements in modern personal healthcare, drug development and nutrition, all issues that are more than ever before acute for an increasingly ageing global society. Examples of foundational explorations of the tailored bioelectroanalytical methodology are the 1969 analyses of oxygen profiles in and above microbial slime and the 1973 initiation of voltammetry in brain tissue with the sensitive tips made of metal and carbon, respectively. The two decades later, the move to, for instance, electrochemical detection of distinct biological processes of chemical neurotransmission at the level of single living cells and single-vesicle exocytosis was the logical result of the accomplishment of continuous sensor and apparatus improvements. This was driven by the scientific desire and methodical necessity to extend investigations into the function of biological entities to actions within or at the smallest complete building blocks of living organisms. Selection of target cells and sensor tip positioning at or in close proximity to their membranes were initially performed in conventional electrophysiology set-ups with inverted microscopes employed for cell visualization and manually operated three-dimensional micropositioning devices used for voltammetric sensor and/or culture plate movement. However, at approximately the same time as the progression of single cell voltammetry, the invention of scanning electrochemical microscopy (SECM) occurred and the novel scanning probe system became rather quickly a favoured complementary analytical platform for the inspection and visualization of cellular activities.

In a scanning electrochemical microscope, a scanning electrochemical probe (SECM tip) is a sensitive collector of redox species as the basis of a faradaic current signal that depends on both the distance to the sample and the absence or presence of sample surface redox activity. Careful computer-controlled movement across a sample of interest and acquisition of localized SECM tip currents is performed as a function of lateral (x, y) tip positions. In the optimal case, the collected data can be used to generate an interpretable real-time replication of sample topography and/or a genuine image of spatially resolved concentration profiles of redox active species in close vicinity to the evaluated sample and with a lateral resolution that is governed roughly by the tip dimension.

A few tens of review articles are at present available on the broad topic 'SECM' and they are together a good primary source of information about the theory and practice of SECM experimentation, the technical accomplishments that helped advance SECM instrumentation and, last but not least, the many special applications in the fields of materials, energy, natural and life sciences. With special focus on biological applications of SECM several reviews are recommended.

Not considering mergers with other scanning microscopy techniques such as, among others,

atomic force microscopy (AFM), scanning ion conductance microscopy (SICM) and near-field optical scanning microscopy (NSOM), the most frequently applied operation modes of SECM are the amperometric feedback and the generator/collector (G/C) modes, with the SECM tip moved at either constant z height or at constant tip-to-sample distance across the sample surface. Here, a summary of adaptations of the various technical SECM solutions for biological, single-cell and single-molecule studies is followed by the classifications of possible applications.

A careful selection of cutting-edge articles from about the last 5 years will then be summarized with the aim of highlighting the enormous level of sophistication at which SECM works on living cells and immobilized bio-macromolecules. A discussion of the promising potentials of state-of-the-art 'biological' SECM-based detection and imaging and recommendations for near- and far-term future goals of applications of scanning miniaturized electrochemical sensors on biological cells and molecular biological entities are provided as part of the concluding section.

2. Scanning electrochemical microscopy-based live cell imaging: technical aspects, targets and potentials

Living cells are lipid double-layer membrane-confined three-dimensional small objects with heights and diameters in the low micrometre scale. They exist in primary cell cultures freshly isolated from the body tissue of interest or in secondary cell cultures as passaged constituents of cell lines. Usually, cultured living cells are used for electrophysiology experiments as seeds on thin glass coverslips or the bottom of plastic Petri dishes, with or without cell adhesion-enhancing surface layers of, for instance, poly-L-lysine. For SECM work on individual cells, careful maintenance of a suitable density of the cell population is important just to have enough healthy but distant choices. is a graphical illustration of the principles of SECM studies on single living cells.

Selections of SECM tips for the voltammetric detection of biological cell activity include bare or chemically modified micro- or nanometre diameter disc-shaped noble metal or carbon electrodes. Independent of their size, scanning SECM tips should traverse gently over the cell to be screened and with appropriate precautions. The required contactless movement in the x/y plane is possible in computer-controlled constant-height or constant-distance modes.

A typical 'bio-SECM' is mounted on the base plate of an inverted microscope with reasonable magnification to aid the visual assessment of cell quality before approach and to facilitate coarse alignment between a healthy cell of choice and the SECM tip prior to operation. Constant-distance mode cellular scanning electrochemical microscopy SECM with nanometre-sized electrochemical sensors moving at constant distance over the membranes of selected cells creates images of cell topography and offers the chance for improved resolution of cell activity at neighbouring membrane locations. Moreover, it is able to explore, for instance, the spatial heterogeneity of a cell response to external stimuli. Suitable nanodisc electrodes are obviously more difficult to fabricate and handle. A collection of recent comprehensive reviews as the source of details on nanoelectrode fabrication, their electrochemical behaviour and potential applications can be found in. The operation of nanodisc electrodes on single cells requires the preservation of a nanometre tip-to-sample working distance for the entire duration of lateral tip displacement relative to the fixed biological sample. Special feedback loop-regulated tip-to-sample distance control units were developed that use the magnitude of shear force-based dampening of intentionally induced vibrations of the nano-SECM tip as the input signal. Corresponding practical bio-SECM setups were realized with optical, piezoelectric or tuning fork-based readouts of tip vibration dampening. Exemplary accomplishments of shear force-supported constant-distance cellular bio-SECM prior to the actual period of this review are, for instance, the spatially resolved detection of neuro-

transmitter secretion from single pheochromocytoma (PC12) cells, localized measurement of stimulated NO release from adherently growing endothelial cells and simultaneous detection of the cellular expression activity of secreted alkaline phosphatase outside and green fluorescent protein inside of gene-transfected single HeLa cells. Though, currently, shear force-based feedback is the leading methodology for constant-distance SECM work on cells, the specific positioning task has also been accomplished with alternative distance-dependent signal inputs for the regulating control units.

What is Muscular and Glandular system: Types and functions Biological basis of Motivation: Hunger, Thirst, Sleep and Sex Biological basis of emotion: The Limbic system, Hormonal regulation of behavior Genetics and behavior: Chromosomal anomalies; Nature-Nurture controversy [Twin studies and adoption studies] ?

Muscular and Glandular system: Types and functions Biological basis of Motivation: Hunger, Thirst, Sleep and Sex Biological basis of emotion: The Limbic system, Hormonal regulation of behavior Genetics and behavior: Chromosomal anomalies; Nature-Nurture controversy [Twin studies and adoption studies]

Muscular system: Types and functions

A muscle is a group of muscle tissues which contract together to produce a force. A muscle consists of fibers of muscle cells surrounded by protective tissue, bundled together many more fibers, all surrounded in a thick protective tissue. A muscle uses ATP to contract and shorten, producing a force on the objects it is connected to. There are several types of muscle, which act on various parts of the body.

Structure of Muscle

A muscle consists of many muscle tissues bundled together and surrounded by epimysium, a tough connective tissue similar to cartilage. The epimysium surrounds bundles of nerve cells that run in long fibers, called fascicles. These fascicles are surrounded by their own protective layer, the perimysium. This layer allows nerves and blood to flow to the individual fibers. Each fiber is then wrapped in an endomysium, another protective layer. As seen in the image below, a muscle is arranged in a basic pattern of bundled fibers separated by protective layers.

These layers and bundles allow different parts of a muscle to contract differently. The protective layer surrounding each bundle allows the different bundles to slide past one another as they contract. The epimysium connects to tendons, which attach to the periosteum connective tissue that surrounds bones. Being anchored to two bones allows movement of the skeleton when the muscle contracts. A different type of muscle surrounds many organs, and the epimysium connects to other connective tissues to produce forces on the organs, controlling everything from circulation to food processing.

Function of Muscle

Whether it is the largest muscle in your body or the tiny muscle controlling the movement of your eye, every muscle functions in a similar manner. A signal is sent from the brain along a bundle of nerves. The electronic and chemical message is passed quickly from nerve cell to nerve cell and finally arrives at the motor end plate. This interface between the muscle and nerve cells releases a chemical signal, acetylcholine, which tells the muscle fiber to contract. This message is distributed to all the cells in the fiber connected to the nerve.

This signal causes the myosin proteins to grab onto the actin filaments around them. These are the purple proteins in the image below. Myosin uses ATP as an energy source to crawl along the green filament, actin. As you can see, the many small heads of the myosin fibers crawling along the actin filaments effectively shortens the length of each muscle cell. The cells, which are connected end-to-end in a long fibers, contract at the same time and shorten the whole fiber. When a signal is sent to an entire muscle or group of muscles, the resulting contraction results in movement or force being applied.

A muscle can be used in many different ways throughout the body. A certain muscle might contract rarely with a lot of force, whereas a different muscle will contract continually with minimal force. Animals have developed a plethora of uses for the forces a muscle can create. Muscles have evolved for flying, swimming, and running. They have also evolved to be pumps used in the circulatory and digestive systems. The heart is a specialized muscle, which is used exclusively for pumping blood throughout the body. These different types of muscle will be discussed below.

Types of Muscle

Skeletal Muscle

When you think of a muscle, most people generally think of a skeletal muscle. The biceps, triceps, and quadriceps are all common names for muscles that body builders tend to focus on. In fact, these general muscles are often composed of many small muscles that attach to different places to give a joint its full range of motion. Skeletal muscle is a striated muscle. This means that each muscle fiber has striations, or linear marks, which can be seen when this muscle is put under a microscope. The striations correspond to the sarcomeres present in striated muscles, which are highly organized bundles of muscle cells which can contract quickly in concert.

Skeletal muscle is controlled via the somatic nervous system, also known as the voluntary nervous system. Point your finger to the ceiling. This is your somatic nervous system in action, controlling your skeletal muscles.

Cardiac Muscle

Cardiac muscle, while similar to skeletal muscle in some ways, is connected to the autonomous nervous system. This system controls vital organs such as the heart and lungs and allows us to not have to focus on pumping our heart each time it needs to beat. While there is a certain amount of conscious control we have over the autonomous nervous system, it will always kick in when we are unconscious. For instance, you can hold your breath if you like but you do not have to remember to breathe all the time. Cardiac muscle surrounds the chambers of the heart and is used to pump blood through the body.

Cardiac muscle is similar to skeletal muscle in that it is striated. Unlike skeletal muscle, cardiac muscle fibers are arranged in a branching pattern instead of a linear pattern. Both skeletal muscle and cardiac muscle need to contract quickly and often, which is why the striations can be seen.

Smooth Muscle

Unlike skeletal and cardiac muscle, smooth muscle is not striated. This is because the individual muscle cells are not perfectly aligned into sarcomeres. Instead, they are displaced throughout the fibers. This gives smooth muscle the ability to contract for longer, although the contraction happens more slowly. Consider the muscle that contracts the sphincter on your bladder. This muscle

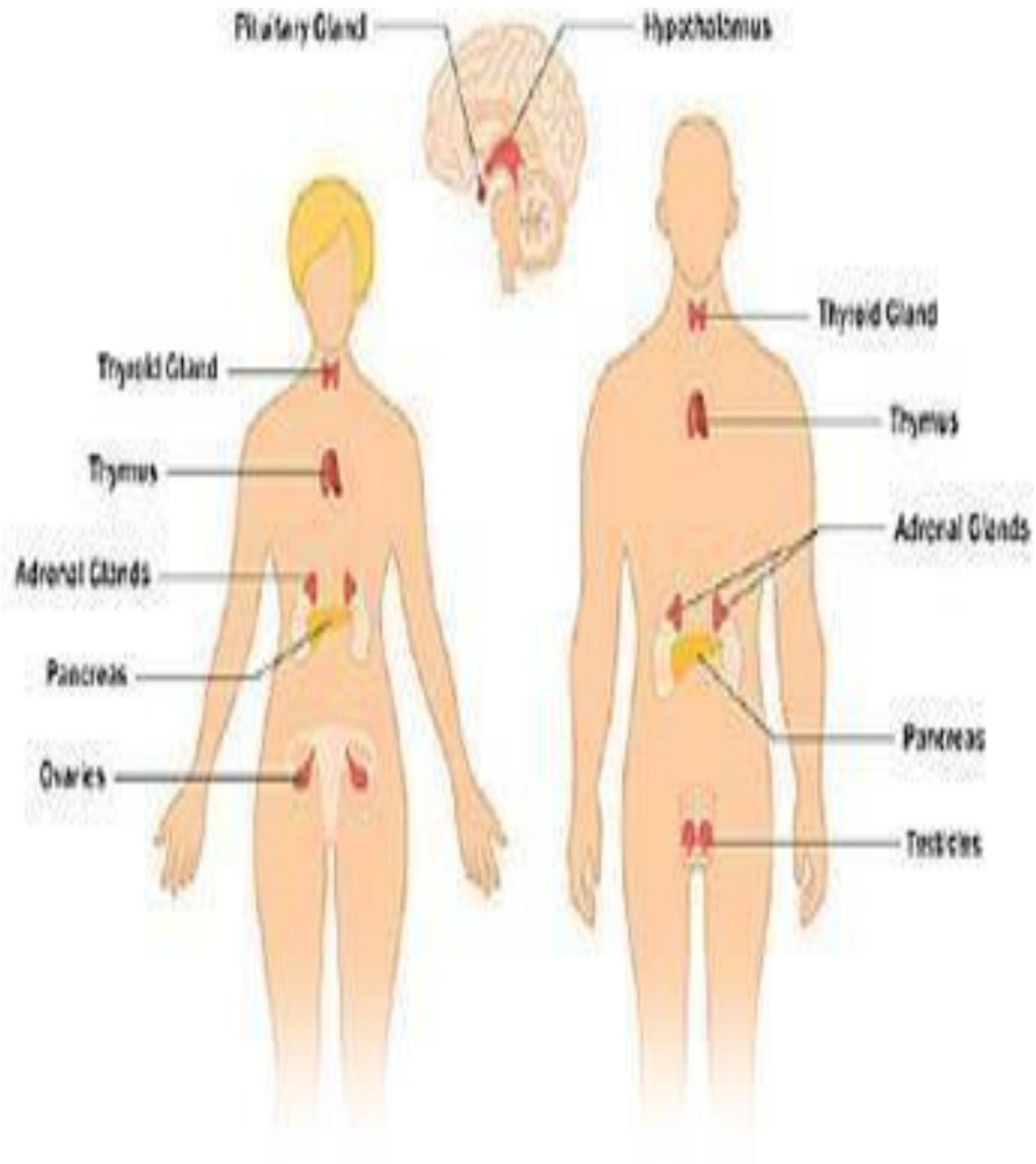
may need to stay clamped shut for hours at a time and only gets a minute of relief when you go to the bathroom. Many other smooth muscles operate in the same manner.

Like cardiac muscle, smooth muscle is mostly controlled by the autonomous nervous system. The many muscles that line your digestive tract work together to move food through the digestive system. Muscles attach to your hair follicles that allow your hairs to stand up when it's cold. Smooth muscle is almost everywhere in your body and aids in everything from circulation to digestion.

Glandular System Types and functions Endocrine System?

The endocrine system is a network of glands in your body that make the hormones that help cells talk to each other. They're responsible for almost every cell, organ, and function in your body. If your endocrine system isn't healthy, you might have problems developing during puberty, getting pregnant, or managing stress. You also might gain weight easily, have weak bones, or lack energy because too much sugar stays in your blood instead of moving into your cells where it's needed for energy.

What Is a Gland?



A gland is an organ that makes and puts out hormones that do a specific job in your body. Endocrine glands release the substances they make into your bloodstream.

Endocrine System Functions

Your endocrine system:

- Makes hormones that control your moods, growth and development, metabolism, organs, and reproduction
- Controls how your hormones are released

- Sends those hormones into your bloodstream so they can travel to other body parts

Parts of the Endocrine System

Many glands make up the endocrine system. The hypothalamus, pituitary gland, and pineal gland are in your brain. The thyroid and parathyroid glands are in your neck. The thymus is between your lungs, the adrenals are on top of your kidneys, and the pancreas is behind your stomach. Your ovaries (if you're a woman) or testes (if you're a man) are in your pelvic region.

- **Hypothalamus.** This organ connects your endocrine system with your nervous system. Its main job is to tell your pituitary gland to start or stop making hormones.
- **Pituitary gland.** This is your endocrine system's master gland. It uses information it gets from your brain to tell other glands in your body what to do. It makes many important hormones, including growth hormone; prolactin, which helps breastfeeding moms make milk; and luteinizing hormone, which manages estrogen in women and testosterone in men.
- **Pineal gland.** It makes a chemical called melatonin that helps your body get ready to go to sleep.
- **Thyroid gland.** This gland makes thyroid hormone, which controls your metabolism. If this gland doesn't make enough (a condition called hypothyroidism), everything happens more slowly. Your heart rate might slow down. You could get constipated. And you might gain weight. If it makes too much (hyperthyroidism), everything speeds up. Your heart might race. You could have diarrhea. And you might lose weight without trying.
- **Parathyroid.** This is a set of four small glands behind your thyroid. They play a role in bone health. The glands control your levels of calcium and phosphorus.
- **Thymus.** This gland makes white blood cells called T-lymphocytes that fight infection and are crucial as a child's immune system develops. The thymus starts to shrink after puberty.
- **Adrenals.** Best known for making the "fight or flight" hormone adrenaline (also called epinephrine), these two glands also make hormones called corticosteroids. They affect your metabolism and sexual function, among other things.
- **Pancreas.** This organ is part of both your digestive and endocrine systems. It makes digestive enzymes that breakdown food. It also makes the hormones insulin and glucagon. These ensure you have the right amount of sugar in your bloodstream and your cells.
- If you don't make insulin, which is the case for people with type 1 diabetes, your blood sugar levels can get dangerously high. In type 2 diabetes, the pancreas usually makes some insulin but not enough.
- **Ovaries.** In women, these organs make estrogen and progesterone. These hormones help develop breasts at puberty, regulate the menstrual cycle, and support a pregnancy.
- **Testes.** In men, the testes make testosterone. It helps them grow facial and body hair at puberty. It also tells the penis to grow larger and plays a role in making sperm.

Biological basis of Motivation

Psychologists have to gather specialized knowledge in considering the ways in which the biological structure and functions of the body affect behaviour. The biological processes are the essential part of human psychology. Our understanding of human behaviour cannot be complete without knowledge of the brain and others part of the nervous system. Biological factors are central to every sensory experience, states of consciousness, motivation and emotion, development

through out the life span and physical and psychological health and wellbeing.

Executive summary

Biological bases influence the learning, memory, and motivation. The biological factors is very important because it is controlling our behaviour .We might not be able to understand behaviour withoutan understanding of our biological makeup.

Objectives of the study:

Basically this study aims to

1. Collect information on the situation of biological factors of ourbehaviour.
2. Explore ways how to improve the behavior.
3. The function of the neuron is fundamental biological aspects ofthe body.

Findings

Biological basis of learning

Learning can be defined as a relatively permanent change in behaviour based on experience. Learning is the aspect of newthings by using past experience. Many psychologists believe learning is based on the strengthening of the neural connections between stimuli and specific patterns of muscle movements, while others said that learning involvoves changes in cognition. The existence of biological constraints is consistent with assess mental discussion of behavior. Freshly there are making suitable by alternative benefits that promote survival for organism that rapidly learn or neglecte that certain behaviors. Such as, our ability to learning avoid touching hot surfaces increase our change in survival(barkow, and tooby 1992; terry, 2003).

Neuclei areas are group of neurons forming structures with specific function. For example each of the different colour on our brainmodel represent and individual areas each with it own internal structure and function (Jeanette, J Norden Venderbilt university school and medicine). Telen-cephalon; – consists of two cerebral hemispheres the outer covering of the hemespheres is called the cortex. The cortex is responsible for voluntary action or thought and for subjective experience. Mesencephalon; – contain many small nuclei that are important to relexs, such as reflexs turning of the eyes toward the source of an objects or sound.

Metencephalon: – A structure that connect the cerebellum with the rest of the body and cerebel-lum that involved in learned skilled motor movement. The role of biological factors of learning has an example that discussed john and his associates. On one fateful evening, they ate eight hot dog. Two hour leter, they become more than just a little nauseated. As a result, it was many year until they ate another hot dog. This experience of learning to dislike hot dogs is an example of a learned taste aversion. (Garcia, Hankins and Rusiniak, 1974)

Biological basis of memory

Memory consists in remembering what has previously been learned .It would be better, however, to say that memory consists in learning, retaining and remembering what has previously been learned (psychology; Methuen and co. Ltd; London; 1964. Memory processes are distributed across the brain, relating to different information processing systems involve during the intitle exposure to a stimulus. (Friedman and Donoghue 2000). A theory stated by Canadian researchar Donald Hebb (1949) is still considerd to provide a general model of the biological processresponsible for memory (Jeffrey and Reid, 1997; Tsien, 2007). According to Hebb, each experience acti-

vates a unique pattern of neurons in the brain. These activities cause structural changes to occur in those neurons near the synaptic gaps that link them. To Hebb, these changes in the functioning of synapses in the brain, which he termed "synaptic facilitation", is the biological basis of memory.

Many different brain areas play a role in memory. The cerebellum plays a critical role in the timing of learned, skilled motor movements. Nuclei deep in the hemisphere called the basal ganglia are involved in motor programs. Many different areas of the brain contribute to attention, these include cortical areas of the reticular formation, all areas which contribute to alertness and attention awareness. The hippocampus is a part of the brain's limbic systems that plays a central role in the consolidation of memories. The hippocampus is an older cortical area involved in multiple aspects of memory. The left hippocampus is more involved in the memory of facts, episodes and words. It is also responsible for constructing. The right hippocampus is more involved in spatial memory. The hippocampus aims in the initial encoding of information that is like a kind of neurological e-mail system. (Smith, 2000; Wheeler, Petersen, and Buckner 2000; Wilson; 2000).

The results of research on the brain's role in memory reveal two ways in which STM (short term memory) and LTM (long term memory). Firstly there is extensive evidence that physical changes in neural synapses are involved in LTM and but not in STM. And secondly there is evidence that different brain structures are involved in different ways in the three stages of memory.

Biological basis of motivation

Motivation: motivation refers to the reasons why any behaviour occurs or specifically, to the forces or processes that initiate the behaviour, direct it, and contribute to its strength. (Psychology, Wadsworth Publishing Company; 1984; Eating behaviour is subject to homeostasis, as most people's weight stays within a relatively stable range. The hypothalamus in the brain is central to the regulation of food intake. Acting as a kind of internal weight thermostat, the hypothalamus calls for either greater or less food intake (Capaldi, 1996; Woods et al, 2000; Berthoud, 2000).

Thirst is the biological process as like as drinking circuits. Drinking circuits is the association of tissue, body, and neuron with in nerve and cell. It is associated with the hypothalamus deeply as like the other drinking circuits. (Thompson et. Al; 1980). Sex is the powerful biological motivation. The sex motivations easily understand the influence of sex hormone. It is related with the increase of age. Sex hormone influence the body to create a kind of pressure for sex activities. This pressure to be continued that time the sex activities is not complete. (Morgan, King. Weisz and Schopler, 1993).

Most of the motivations are based on the body's need to maintain a certain level of essential elements; adequate sugar in the blood to nourish cells, enough water in the body. These levels are regulated to homeostatic mechanisms. These mechanisms imbalance in the body and stimulate actions that restore the proper balance.

Hunger

The biological drive of **hunger**, or desiring to eat, relates to the end of this motivated behavior once we are full, called **satiety**. Basically, we eat because there is a deprivation in the amount of glucose in our blood to sustain activity and once we have restored that glucose level to its set point, hunger ends. In other words, we have achieved homeostasis again. The feeling of hunger is not pleasant and results in feeling shaky, lethargic, and possibly being sick to our stomach. We want to do something about this. So how do we know when to eat?

Signals arise from both the stomach (surprising, right?) and the blood, but the stomach plays less of a role than we might realize. We all have experienced hunger pangs or our stomach growling, or the feeling of being full especially after one of our main food holidays (Christmas, Easter, or Thanksgiving). These stomach indicators relate to being very hungry (i.e. being famished) or very full (i.e. stuffed) but that is about it.

What about other possible signals? I mentioned the blood and the brain receives information from the blood about levels of glucose, or sugar used by body cells for energy. When our glucose levels are low we are motivated to eat and restore these levels. The brain also regulates hunger through the action of the hormone ghrelin which increases appetite and leptin which reduces appetite. Other important hormones include GLP-1 which reduces appetite and tells the pancreas to release insulin, CCK which improves digestion by reducing the rate at which food is emptied from the stomach and into the small intestine, PYY which causes satiety by being secreted into the bloodstream by the small intestine and then binding to receptor sites in the brain, and neuropeptide Y which leads to increased consumption of carbohydrates.

Though many areas of the brain are involved in the regulation of hunger, the **hypothalamus** plays a pivotal role. In terms of knowing when to start eating, the lateral hypothalamus is involved and if stimulated with an electrode, an animal that is in a state of satiation will begin eating. In terms of satiety, the ventromedial hypothalamus tells an animal to stop eating but if destroyed, overeating results. Finally, the paraventricular nucleus is involved in satiety as shown by stimulating it and in overeating if destroyed or damaged. It helps to regulate blood sugar levels.

In addition to these internal signals to eat, several external cues are important too. First, we sometimes eat not because we are hungry, but because it is time to eat. Time of day factors in such that most people eat at noon because our society has been told that we should eat then. Or we might eat on our lunch break at work whether we are hungry or not. Second, social factors play in. We may eat because our friends are doing so and don't want to be left out. Third, the sight of food, or its smell, may motivated us to eat. Fourth, to deal with life we sometimes engage in comfort eating as a tension reduction strategy, or to deal with stress (See Module 4).

Fifth, but more so a cue as to what to eat, culture plays in. Some cultures find our eating of ground beef from cows to be appalling, as much as we find their eating of cats or dogs to be so. Sixth, and as mentioned already, we tend to overeat during certain times of the year such as holidays – Thanksgiving, Christmas, and Easter. Going back to our discussion of behavioral change from Module 6, if we are trying to get in shape by reducing our caloric intake, we need to take into consideration temptations that could lead us to engage in undesirable or problem behavior. Social eating is one such example of eating when we are not actually hungry.

Thirst

There are two kinds of thirst that we can experience. Yes, two. If you eat a salty meal you experience the first type called **intracellular thirst**. Excessive salt, such as found in potato chips, causes fluid to be drawn out of our cells and as they “shrink” we become thirsty. No worries. If we drink water (nothing added to it such as the flavor aides) we can restore this deficiency. The second type of thirst occurs when we are sweating, have diarrhea, vomit, or are bleeding, and

is called **extracellular thirst**. Essentially, water is lost from the fluid surrounding our cells and drinking a saline solution helps such as Gatorade or Powerade.

Sleep

Though we know that sleep is a necessary requirement for all human beings, and is essential for survival, the exact reason(s) is/are not as clear. We spend about one-third of our time sleeping. Several brain structures are involved in the regulation of sleep. First, the hypothalamus contains the **suprachiasmatic nucleus** (SCN) which is a cluster of cells that receives information about light exposure from the eyes and controls our behavioral rhythms. People with damage to this area sleep erratically during the day because their light-dark cycle and circadian rhythms are not in synch. During all stages of sleep but REM sleep, the **thalamus**, or sensory relay station, becomes quiet and allows you to tune out the external world. The **pineal gland** receives signals from the SCN and increases production of the hormone melatonin, which aids in sleeping once the lights are off.

Sleep is regulated by two internal biological mechanisms. First, **circadian rhythms** affect fluctuations in wakefulness, metabolism, body temperature, and the release of hormones. Specifically, they control the timing of sleep and lead you to feel sleepy at night. Second, sleep-wake homeostasis tracks how much sleep you need and gives the body a reminder to sleep after a certain amount of time. It also regulates sleep intensity. How much sleep do you need? There is no magic number and in general, it is recommended that adults sleep 7-9 hours a night while babies sleep 16-18 hours a day and school-aged children and teens sleep about 9.5 hours.

Sex

Sexual behavior is an interesting type of motivated behavior as it is not needed for survival in the same sense as hunger or thirst, but is needed for reproduction and continuation of the species. Understanding sexual behavior is important, as a 2017 survey conducted by the Centers for Disease Control and Prevention (CDC) of high school students shows:

- 40% of students said they had sexual intercourse
- 10% have had more than one sexual partner
- 30% had sexual intercourse during the previous 3 months and of this, 46% did not use a condom the last time they had sex and 14% did not use any method to prevent pregnancy.
- In terms of health outcomes, 21% of all new HIV diagnoses in the US in 2016 were people aged 13-24, half of the 20 million new STD cases in the US were people aged 15-24, and about 210,000 babies were born to girls aged 15-19 in 2016

Human sexual behavior is activated by the sex hormones estrogens, progestins, and androgens. All three circulate in the blood of males and females but females have greater levels of the first two and males have higher levels of the last. Recall from Module 10 that during adolescence hormone levels rise and lead to increases in sexual desire and behavior. According to Masters and Johnson (1966) there is a distinct pattern of physiological arousal for men and women, before, during, and after sexual activity, and called the **sexual response pattern**.

How so? Phase 1 is excitement and is characterized by increased muscle tension, faster heart rate, the breasts becoming fuller and the nipples hardening, vaginal lubrication beginning, and the man secreting a lubricating liquid. Phase 2 is plateau and extends to the brink of orgasm and is an intensification of the changes began in phase 1. Phase 3 is orgasm and is the climax of the

cycle but lasts only a few seconds. The uterus in women and the penis in men undergo rhythmic contractions, and in men results in the ejaculation of semen.

For men and women, the phase is intensely pleasurable and leads to a release of both physical and psychological tension. Phase 4 is resolution and now the body returns to its normal level of functioning. Swelled or erect body parts return to normal and sexual partners experience intimacy, fatigue, and a general sense of well-being. Men enter a refractory period during which they cannot achieve an orgasm again. How long this last depends on the man and the time lengthens with age.

Biological basis of emotion: The Limbic system, Hormonal regulation of behavior

The experience of emotion is accompanied by activation of two major areas of the nervous system: the brain and the autonomic nervous system.

Activation of Brain Regions

The area of the brain known as the **Limbic System** is highly involved in emotion. One structure in the limbic system, called the **Amygdala**, plays a particularly important role in regulating emotion. Researchers believe that sensory information about emotion-evoking events moves along two pathways in the brain. The information goes first to the thalamus and from there moves simultaneously to the amygdala and the cortex of the brain. The amygdala processes the information quickly and sends signals to the hypothalamus, which in turn activates the autonomic nervous system. The cortex, on the other hand, processes the information more slowly, allowing people to appraise or evaluate the event.

Example: When information travels from the sense organs to the thalamus to the amygdala, people respond instantaneously, without thinking, to events in their environment. A parent may snatch her child away from a curb without thinking if she hears the sound of squealing tires coming toward them.

KEY TAKEAWAYS

Key Points

- The limbic system, autonomic nervous system, and reticular activating system all interact in the physiological processing of emotion.
- The limbic system categorizes human emotional experiences as either pleasant or unpleasant mental states. Neurochemicals such as dopamine, noradrenaline, and serotonin are important components of the limbic system.
- The autonomic nervous system, together with the hypothalamus, regulates pulse, blood pressure, breathing, and arousal in response to emotional cues.
- When activated, the sympathetic nervous system prepares the body for emergency actions by controlling the glands of the endocrine system. Conversely, the parasympathetic nervous system functions when the body is relaxed or at rest and helps the body store energy for future use.
- The reticular activating system is believed to first arouse the cortex and then maintain its wakefulness so that sensory information and emotion can be interpreted more effectively.

Key Terms

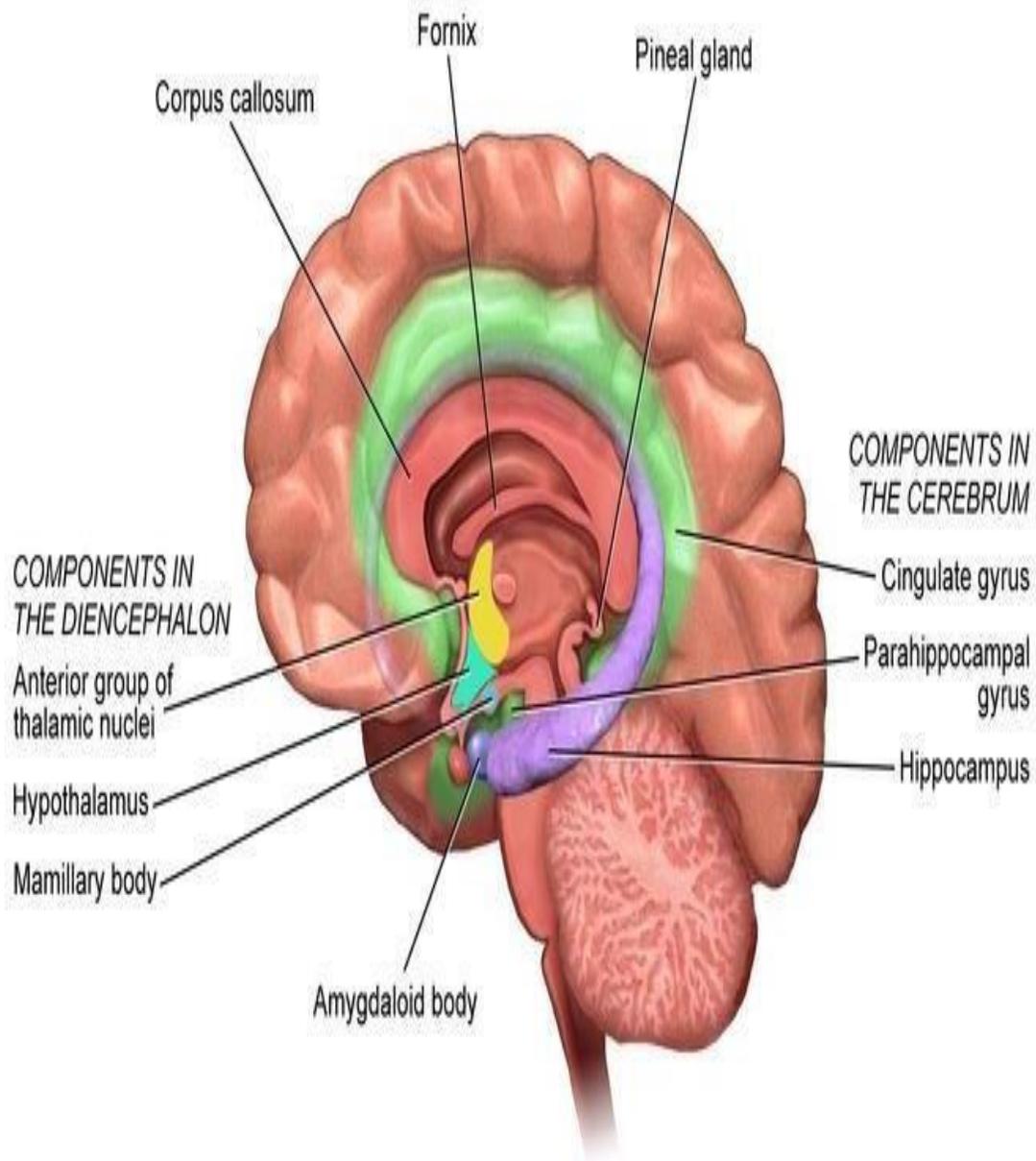
- **homeostasis:** Equilibrium of the body, in which biological conditions (such as body temperature) are maintained at optimal levels.
- **cerebral cortex:** The grey, folded, outermost layer of the cerebrum that is responsible for higher brain processes such as sensation, voluntary muscle movement, thought, reasoning, and memory.
- **amygdala:** A part of the brain located in the medial temporal lobe. It is believed to play a key role in emotion in both animals and humans, particularly in the formation of fear-based memories.
- **hippocampus:** A part of the limbic system, located in the temporal lobe of the brain and consisting mainly of grey matter. It plays a role in memory and emotion.
- **emotion:** The complex psychophysiological experience of an individual's state of mind as it is interacting with biochemical (internal) and environmental (external) influences. Emotions can be explained in biological and neurological terms. The limbic system, autonomic nervous system, and reticular activating system all interact to assist the body in experiencing and processing emotions.

The Limbic System

The limbic system is the area of the brain most heavily implicated in emotion and memory. Its structures include the hypothalamus, thalamus, amygdala, and hippocampus. The hypothalamus plays a role in the activation of the sympathetic nervous system, which is a part of any emotional reaction. The thalamus serves as a sensory relay center; its neurons project signals to both the amygdala and the higher cortical regions for further processing. The amygdala plays a role in processing emotional information and sending that information on to cortical structures. The hippocampus integrates emotional experience with cognition.

Other parts of the limbic system include the olfactory bulbs, anterior nuclei, fornix, column of fornix, mammillary body, septum pellucidum, habenular commissure, cingulate gyrus, parahippocampal gyrus, limbic cortex, and limbic midbrain areas.

The Limbic System



The limbic system: The limbic system is the area of the brain involved with emotion and memory. Its structures include the hypothalamus, thalamus, amygdala, and hippocampus. The processes of the limbic system control our physical and emotional responses to environmental stimuli. This system categorizes the experience of an emotion as a pleasant or unpleasant mental state. Based on this categorization, neurochemicals such as dopamine, noradrenaline, and serotonin increase or decrease, causing the brain's activity level to fluctuate and resulting in changes in body movement, gestures, and poses.

Hormones and Behavior: Basic Concepts

Behavioral endocrinology is the scientific study of the interaction between hormones and behavior. This interaction is bidirectional: hormones can affect behavior, and behavior can feedback to influence hormone concentrations. Hormones are chemical messengers released from endocrine glands that influence the nervous system to regulate the physiology and behavior of individuals. Over evolutionary time, hormones regulating physiological processes have been co-opted to influence behaviors linked to these processes. For example, hormones associated with gamete maturation such as estrogens are now broadly associated with the regulation of female sexual behaviors.

Such dual hormonal actions ensure that mating behavior occurs when animals have mature gametes available for fertilization. Generally speaking, hormones change gene expression or cellular function, and affect behavior by increasing the likelihood that specific behaviors occur in the presence of precise stimuli. Hormones achieve this by affecting individuals' sensory systems, central integrators, and/or peripheral effectors. To gain a full understanding of hormone-behavior interactions, it is important to monitor hormone values, as well as receptor interactions in the brain. Because certain chemicals in the environment can mimic natural hormones, these chemicals can have profound effects on the behavior of humans and other animals.

Behavioral Endocrinology Techniques A number of methods are used to gather the evidence needed to establish hormone-behavior relationships. Much of the recent progress in behavioral endocrinology has resulted from technical advances in the tools that allow us to detect, measure, and probe the functions of hormones and their receptors. These techniques, with a brief description, are listed in Table

1. Several of these techniques are the result of advanced research in behavioral endocrinology, including the time-honored ablation-replacement techniques, bioassays, as well as modern assays that utilize the concept of competitive binding of antibodies that include radioimmunoassay (RIA), enzyme-linked immunosorbent assay (ELISA; enzyme-linked immunoassay (EIA)), autoradiography, and immunocytochemistry. Other techniques commonly used in behavioral endocrinology include neural stimulation and single-unit recording, techniques that activate or block hormone receptors with drugs, and gene arrays and genetic manipulations including interfering with RNA and use of viral gene vectors to deliver novel genes directly into the brain. Because hormones must interact with specific receptors to evoke a response, many of these techniques are used to influence or measure hormone secretion, hormone binding, or the physiological and behavioral effects that ensue after hormones bind to their respective receptors.

Hormones

Hormones are organic chemical messengers produced and released by specialized glands called 'endocrine glands.' Endocrine is derived from the Greek root words endon, meaning 'within,' and krinein, meaning 'to release,' whereas the term hormone is based on the Greek word hormon, meaning 'to excite.' Hormones are released from these glands into the bloodstream (or the tissue fluid system in invertebrates), where they act on target organs (or tissues) generally at some distance from their origin. Hormones coordinate the physiology and behavior of an animal by regulating, integrating, and controlling its bodily function. Hormones are similar in function to other chemical mediators including neurotransmitters and cytokines. Indeed, the division of chemical mediators into categories mainly reflects the need by researchers to organize biological systems

into endocrine, nervous, and immune systems, rather than real functional differences among these chemical signals. Hormones often function locally as neurotransmitters and also interact with neurotransmitters and cytokines to influence behavior.

Hormones can be grouped into four classes:

- (1) peptides or proteins,
- (2) steroids,
- (3) monoamines, and
- (4) lipidbased hormones. Generally, only one class of hormone is produced by a single endocrine gland, but there are some notable exceptions.

It is important and useful to discriminate among the four types of hormones because they differ in several important characteristics, including their mode of release, how they move through the blood, the location of their target tissue receptors, and the manner by which the interaction of the hormone with its receptor results in a biological response.

Protein Hormones

Most vertebrate hormones are proteins. Protein hormones that comprise only a few amino acids in length are called 'peptide hormones,' whereas larger ones are called 'protein' or 'polypeptide hormones.' Protein and peptide hormones include insulin, the glucagons, the neurohormones of the hypothalamus, the tropic hormones of the anterior pituitary, inhibin, calcitonin, parathyroid hormone, the gastrointestinal (gut) hormones, ghrelin, leptin, adiponectin, and the posterior pituitary hormones. Protein and peptide hormones can be stored in endocrine cells and are released into the circulatory system by means of exocytosis. Protein and peptide hormones are soluble in blood, and therefore, do not require a carrier protein to travel to their target cells, as do steroid hormones.

Steroid Hormones

The adrenal glands, the gonads, and the brain are the most common sources of steroid hormones in vertebrates. Vertebrate steroid hormones have a characteristic chemical structure that includes three six-carbon rings plus one conjugated five-carbon ring. In the nomenclature of steroid biochemistry, substances are identified by the number of carbon atoms in their chemical structure. The precursor to all vertebrate steroid hormones is cholesterol.

The cholesterol molecule contains 27 carbon atoms (a C₂₇ substance), although cholesterol itself is not a true steroid and can be stored within lipid droplets inside cells. Because steroid hormones are fat soluble and move easily through cell membranes, they are never stored, but leave the cells in which they were produced almost immediately. A signal to produce steroid hormones is also a signal to release them.

How Might Hormones Affect Behavior?

All behavioral systems, including animals, comprise three interacting components:

- (1) input systems (sensory systems),
- (2) integrators (the central nervous system), and
- (3) output systems, or effectors (e.g., muscles).

Again, hormones do not cause behavioral changes. Rather, hormones influence these three sys-

tems so that specific stimuli are more likely to elicit certain responses in the appropriate behavioral or social context. In other words, hormones change the probability that a particular behavior will be emitted in the appropriate situation. This is a critical distinction that affects conceptualization of hormone–behavior relationships. For example, female rodents must adopt a rigid mating posture (called ‘lordosis’) for successful copulation to occur. Females only show this posture when blood estrogen concentrations are high coincident with the maturing ova. Females adopt the lordosis posture in response to tactile stimuli provided by a mounting male. Estrogens affect sensory input by increasing the receptive field size in sensory cells in the flanks.

Estrogen affects protein synthesis, the electrophysiological responses of neurons, and the appearance of growth-like processes on neurons in the central nervous system, thus altering the speed of processing and connectivity of neurons. Finally, estrogen affects the muscular output that results in lordosis, as well as chemosensory stimuli important in attracting a mating partner.

How Might Behavior Affect Hormones?

The female rodent mating posture example demonstrates how hormones can affect behavior, but, as noted previously, the reciprocal relation also occurs, that is, behavior can affect hormone concentrations. For example, chemosensory cues from males may elevate blood estradiol concentrations in females, and thereby stimulate proceptive or male-seeking behaviors. Similarly, male mammals that lose an aggressive encounter decrease circulating testosterone concentrations for several days or even weeks afterward. Similar results have also been reported in humans.

Human testosterone concentrations are affected not only in those involved in physical combat, but also in those involved in simulated battles. For example, testosterone concentrations are elevated in winners and reduced in losers of regional chess tournaments.

Types of Evidence for Establishing Hormone–Behavior Interactions

What sort of evidence would be sufficient to establish that a particular hormone affected a specific behavior or that a specific behavior changed hormone concentrations? Experiments to test hypotheses about the effects of hormones on behavior must be carefully designed, and, generally, three conditions must be satisfied by the experimental results to establish a causal link between hormones and behavior:

- (1) a hormonally dependent behavior should disappear when the source of the hormone is removed or the actions of the hormone are blocked,
- (2) after the behavior stops, restoration of the missing hormonal source or its hormone should reinstate the absent behavior, and
- (3) finally, hormone concentrations and the behavior in question should be covariant, that is, the behavior should be observed only when hormone concentrations are relatively high and never or rarely observed when hormone concentrations are low.

Genetics and behavior: Chromosomal anomalies; Nature- Nurture controversy [Twin studies and adoption studies]

Behaviour genetics, also called psychogenetics, the study of the influence of an organism’s genetic composition on its behaviour and the interaction of heredity and environment insofar as they affect behaviour. The question of the determinants of behavioral abilities and disabilities has commonly been referred to as the “nature-nurture” controversy.

Early History

The relationship between behaviour and genetics, or heredity, dates to the work of English scientist Sir Francis Galton (1822–1911), who coined the phrase “nature and nurture.” Galton studied the families of outstanding men of his day and concluded, like his cousin Charles Darwin, that mental powers run in families. Galton became the first to use twins in genetic research and pioneered many of the statistical methods of analysis that are in use today. In 1918 British statistician and geneticist Ronald Aylmer Fisher published a paper that showed how Gregor Mendel’s laws of inheritance applied to complex traits influenced by multiple genes and environmental factors.

The first human behavioral genetic research on intelligence and mental illness began in the 1920s, when environmentalism (the theory that behaviour is a result of nongenetic factors such as various childhood experiences) became popular and before Nazi Germany’s abuse of genetics made the notion of hereditary influence abhorrent. Although genetic research on human behaviour continued throughout the following decades, it was not until the 1970s that a balanced view came to prevail in psychiatry that recognized the importance of nature as well as nurture. In psychology, this reconciliation did not take hold until the 1980s. Much behavioral genetic research today focuses on identifying specific genes that affect behavioral dimensions, such as personality and intelligence, and disorders, such as autism, hyperactivity, depression, and schizophrenia.

Methods Of Study

Quantitative genetic methods are used to estimate the net effect of genetic and environmental factors on individual differences in any complex trait, including behavioral traits. In addition, molecular genetic methods are used to identify specific genes responsible for genetic influence. Research is carried out in both animals and humans; however, studies using animal models tend to provide more-accurate data than studies in humans because both genes and environment can be manipulated and controlled in the laboratory.

By mating related animals such as siblings for many generations, nearly pure strains are obtained in which all offspring are genetically highly similar. It is possible to screen for genetic influence on behaviour by comparing the behaviour of different inbred strains raised in the same laboratory environment. Another method, known as selective breeding, evaluates genetic involvement by attempting to breed for high and low extremes of a trait for several generations. Both methods have been applied to a wide variety of animal behaviours, especially learning and behavioral responses to drugs, and this research provides evidence for widespread influence of genes on behaviour. Because genes and environments cannot be manipulated in the human species, two quasi-experimental methods are used to screen for genetic influence on individual differences in complex traits such as behaviour.

The twin method relies on the accident of nature that results in identical (monozygotic, MZ) twins or fraternal (dizygotic, DZ) twins. MZ twins are like clones, genetically identical to each other because they came from the same fertilized egg. DZ twins, on the other hand, developed from two eggs that happened to be fertilized at the same time. Like other siblings, DZ twins are only half as similar genetically as MZ twins. To the extent that behavioral variability is caused by environmental factors, DZ twins should be as similar for the behavioral trait as are MZ twins be-

cause both types of twins are reared by the same parents in the same place at the same time. If the trait is influenced by genes, then DZ twins ought to be less similar than MZ twins.

For schizophrenia, for example, the concordance (risk of one twin's being schizophrenic if the other is) is about 45 percent for MZ twins and about 15 percent for DZ twins. For intelligence as assessed by IQ tests, the correlation, an index of resemblance (0.00 indicates no resemblance and 1.00 indicates perfect resemblance), is 0.85 for MZ twins and 0.60 for DZ twins for studies throughout the world of more than 10,000 pairs of twins. The twin method has been robustly defended as a rough screen for genetic influence on behaviour.

Chromosomal Abnormalities

Almost every cell in our body contains 23 pairs of chromosomes, for a total of 46 chromosomes. Half of the chromosomes come from our mother, and the other half come from our father. The first 22 pairs are called autosomes. The 23rd pair consists of the sex chromosomes, X and Y. Females usually have two X chromosomes, and males usually have one X and one Y chromosome in each cell. All of the information that the body needs to grow and develop comes from the chromosomes. Each chromosome contains thousands of genes, which make proteins that direct the body's development, growth, and chemical reactions.

Many types of chromosomal abnormalities exist, but they can be categorized as either numerical or structural. Numerical abnormalities are whole chromosomes either missing from or extra to the normal pair. Structural abnormalities are when part of an individual chromosome is missing, extra, switched to another chromosome, or turned upside down. Chromosomal abnormalities can occur as an accident when the egg or the sperm is formed or during the early developmental stages of the fetus. The age of the mother and certain environmental factors may play a role in the occurrence of genetic errors. Prenatal screening and testing can be performed to examine the chromosomes of the fetus and detect some, but not all, types of chromosomal abnormalities.

Chromosomal abnormalities can have many different effects, depending on the specific abnormality. For example, an extra copy of chromosome 21 causes Down syndrome (trisomy 21). Chromosomal abnormalities can also cause miscarriage, disease, or problems in growth or development. The most common type of chromosomal abnormality is known as aneuploidy, an abnormal chromosome number due to an extra or missing chromosome. Most people with aneuploidy have trisomy (three copies of a chromosome) instead of monosomy (single copy of a chromosome). Down syndrome is probably the most well-known example of a chromosomal aneuploidy. Besides trisomy 21, the major chromosomal aneuploidies seen in live-born babies are: trisomy 18; trisomy 13; 45, X (Turner syndrome); 47, XXY (Klinefelter syndrome); 47, XYY; and 47, XXX.

Structural chromosomal abnormalities result from breakage and incorrect rejoining of chromosomal segments. A range of structural chromosomal abnormalities result in disease. Structural rearrangements are defined as balanced if the complete chromosomal set is still present, though rearranged, and unbalanced if information is additional or missing. Unbalanced rearrangements include deletions, duplications, or insertions of a chromosomal segment. Ring chromosomes can result when a chromosome undergoes two breaks and the broken ends fuse into a circular chromosome. An isochromosome can form when an arm of the chromosome is missing and the remaining arm duplicates.

Balanced rearrangements include inverted or translocated chromosomal regions. Since the full complement of DNA material is still present, balanced chromosomal rearrangements may go undetected because they may not result in disease. A disease can arise as a result of a balanced rearrangement if the breaks in the chromosomes occur in a gene, resulting in an absent or nonfunctional protein, or if the fusion of chromosomal segments results in a hybrid of two genes, producing a new protein product whose function is damaging to the cell.

Nature-Nurture controversy [Twin studies and adoption studies]

Genetics researchers now know that while an individual's DNA is essentially immutable, a wide range of environmental factors can confer what are called epigenetic differences. Epigenetics influences which genes in an individual's genome may be turned on or turned off. Such factors as exercise, sleep, trauma, aging, stress, illness and diet have been shown to have epigenetic effects, some of which can be passed on to future generations.

Researchers are seeking ways to deliberately alter gene expression in hopes of finding preventives or treatments for diseases like diabetes with a strong genetic component. There can also be changes in the genome of an identical twin when the egg divides, resulting in a defect in a particular gene, Dr. Segal said. In a pair of identical twin girls, one can experience a phenomenon called X-linked inactivation. Two of the identical Dionne quintuplets were colorblind as a result of such a genetic effect.

Dr. Segal, who has also written "Twin Misconceptions: False Beliefs, Fables, and Facts About Twins," said the studies highlight the importance of keeping twins, especially identical twins, together when they are adopted. As was depicted in the documentary, Dr. Segal said, "The triplets deeply resented having been separated. They lost out on wonderful years they could have had together. There was an immediate bond, an understanding of one another, that was obvious as soon as they found each other."

New research into epigenetics—the science of how the environment influences genetic expression—is changing the conversation. As psychologist David S. Moore explains in his newest book, *The Developing Genome*, this burgeoning field reveals that what counts is not what genes you have so much as what your genes are doing. And what your genes are doing is influenced by the ever-changing environment they're in. Factors like stress, nutrition, and exposure to toxins all play a role in how genes are expressed—essentially which genes are turned on or off. Unlike the static conception of nature or nurture, epigenetic research demonstrates how genes and environments continuously interact to produce characteristics throughout a lifetime.

The Nature vs. Nurture Debate

Are you the way you are because you were born that way, or because of the way you were raised? Do your genetics and biology dictate your personality and behavior, or is it your environment and how you were raised? These questions are central to the age-old **nature-nurture** debate. In the history of psychology, no other question has caused so much controversy and offense: We are so concerned with nature–nurture because our very sense of moral character seems to depend on it. While we may admire the athletic skills of a great basketball player, we think of his height as simply a gift, a payoff in the "genetic lottery." For the same reason, no one blames a short person for his height or someone's congenital disability on poor decisions: To state the obvious, it's "not their fault." But we do praise the concert violinist (and perhaps her parents and teachers as well)

for her dedication, just as we condemn cheaters, slackers, and bullies for their bad behavior. The problem is, most human characteristics aren't usually as clear-cut as height or instrument-mastery, affirming our nature–nurture expectations strongly one way or the other. In fact, even the great violinist might have some inborn qualities—perfect pitch, or long, nimble fingers— that support and reward her hard work. And the basketball player might have eaten a diet while growing up that promoted his genetic tendency for being tall. When we think about our own qualities, they seem under our control in some respects, yet beyond our control in others. And often the traits that don't seem to have an obvious cause are the ones that concern us the most and are far more personally significant. What about how much we drink or worry? What about our honesty, or religiosity, or sexual orientation? They all come from that uncertain zone, neither fixed by nature nor totally under our own control.



Figure 1. Researchers have learned a great deal about the nature- nurture dynamic by working with animals. But of course many of the techniques used to study animals cannot be applied to people. Separating these two influences in human subjects is a greater research challenge. [Photo: mharrsch] With people, however, we can't assign babies to parents at random, or select parents with certain behavioral characteristics to mate, merely in the interest of science (though history does include horrific examples of such practices, in misguided attempts at "eugenics," the shaping of human characteristics through intentional breeding). In typical human families, children's biological parents raise them, so it is very difficult to know whether children act like their parents due to genetic (nature) or environmental (nurture) reasons. Nevertheless, despite our restrictions on setting up human-based experiments, we do see real-world examples of nature-nurture at work in the human sphere—though they only provide partial answers to our many questions. The science of how genes and environments work together to influence behavior is called **behavioral genetics**. The easiest opportunity we have to observe this is the **adoption study**. When children are put up for adoption, the parents who give birth to them are no longer the parents who raise them. This setup isn't quite the same as the experiments with dogs (children aren't assigned to random adoptive parents in order to suit the particular interests of a scientist) but adoption still tells us some interesting things, or at least confirms some basic expectations. For instance, if the biological child of tall parents were adopted into a family of short people, do you suppose the child's growth would be affected? What about the biological child of a Spanish-speaking family adopted at birth into an English-speaking family? What language would you expect the child to speak? And what might these outcomes tell you about the difference between height and language in terms of nature-nurture?



Figure 2. Studies focused on twins have led to important insights about the biological origins of many personality characteristics. Another option for observing nature-nurture in humans involves **twin studies**. There are two types of twins: monozygotic (MZ) and dizygotic (DZ). Monozygotic twins, also called “identical” twins, result from a single zygote (fertilized egg) and have the same DNA. They are essentially clones. Dizygotic twins, also known as “fraternal” twins, develop from two zygotes and share 50% of their DNA. Fraternal twins are ordinary siblings who happen to have been born at the same time. To analyze nature–nurture using twins, we compare the similarity of MZ and DZ pairs. Sticking with the features of height and spoken language, let’s take a look at how nature and nurture apply: Identical twins, unsurprisingly, are almost perfectly similar for height. The heights of fraternal twins, however, are like any other sibling pairs: more similar to each other than to people from other families, but hardly identical. This contrast between twin types gives us a clue about the role genetics plays in determining height.

Now consider spoken language. If one identical twin speaks Spanish at home, the co-twin with whom she is raised almost certainly does too. But the same would be true for a pair of fraternal twins raised together. In terms of spoken language, fraternal twins are just as similar as identical twins, so it appears that the genetic match of identical twins doesn’t make much difference. Twin and adoption studies are two instances of a much broader class of methods for observing nature-nurture called **quantitative genetics**, the scientific discipline in which similarities among individuals are analyzed based on how biologically related they are. We can do these studies with siblings and half-siblings, cousins, twins who have been separated at birth and raised separately (Bouchard, Lykken, McGue, & Segal, 1990; such twins are very rare and play a smaller role than is commonly believed in the science of nature–nurture), or with entire extended families (see Plomin, DeFries, Knopik, & Neiderhiser, 2012, for a complete introduction to research methods relevant to nature–nurture).

For better or for worse, contentions about nature–nurture have intensified because quantitative genetics produces a number called a **heritability coefficient**, varying from 0 to 1, that is meant to provide a single measure of genetics’ influence of a trait. In a general way, a heritability coefficient measures how strongly differences among individuals are related to differences among their genes. But beware: Heritability coefficients, although simple to compute, are deceptively difficult to interpret. Nevertheless, numbers that provide simple answers to complicated questions tend to have a strong influence on the human imagination, and a great deal of time has been spent discussing whether the heritability of intelligence or personality or depression is equal to one number or another.

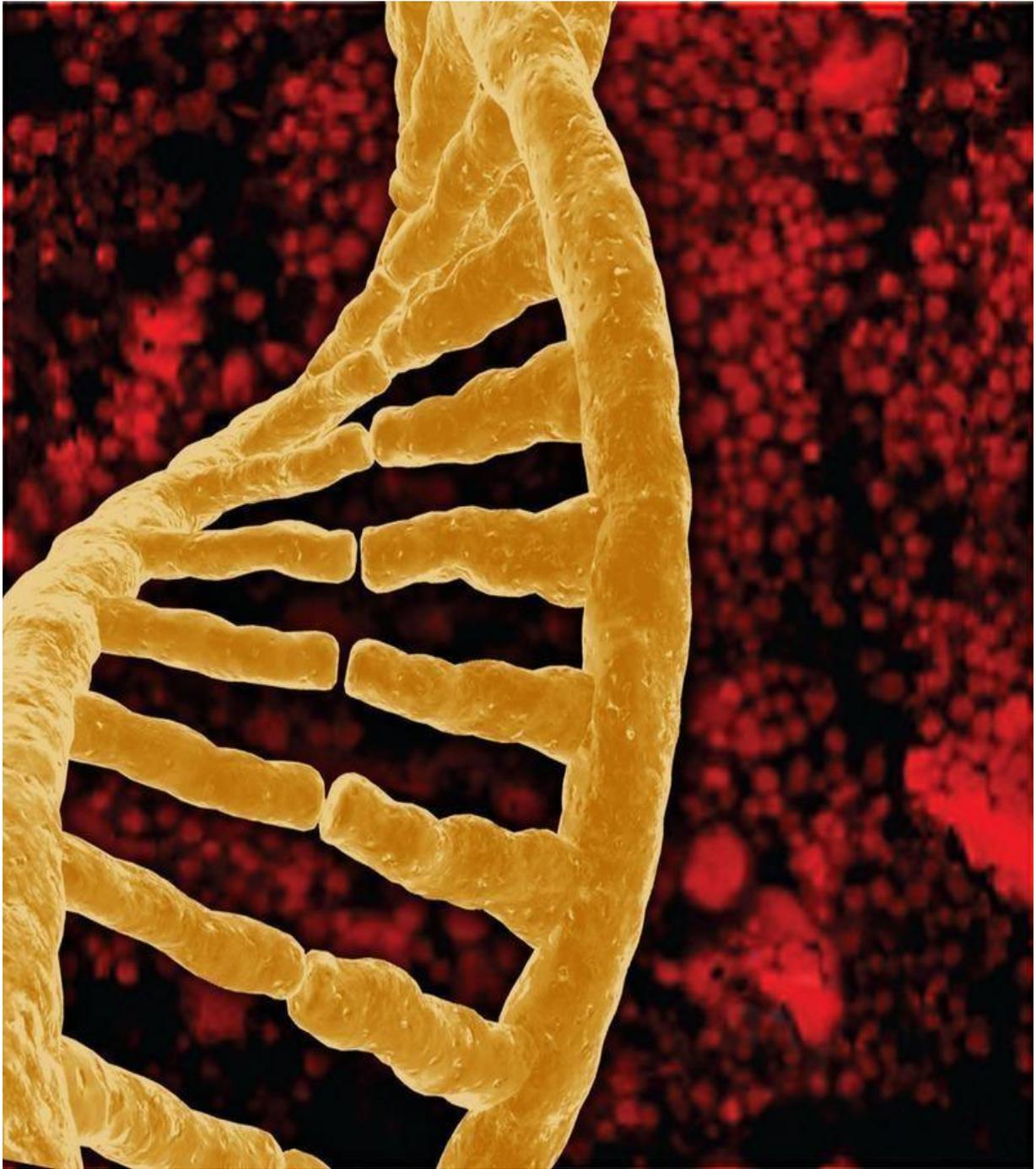


Figure 3. Quantitative genetics uses statistical methods to study the effects that both heredity and environment have on test subjects. These methods have provided us with the heritability coefficient which measures how strongly differences among individuals for a trait are related to differences among their genes. One reason nature–nurture continues to fascinate us so much is that we live in an era of great scientific discovery in genetics, comparable to the times of Copernicus, Galileo, and Newton, with regard to astronomy and physics. Every day, it seems, new discoveries are made, new possibilities proposed. When Francis Galton first started thinking about nature–nurture in the late-19th century he was very influenced by his cousin, Charles Darwin, but genetics per se was unknown.

Mendel's famous work with peas, conducted at about the same time, went undiscovered for 20 years; quantitative genetics was developed in the 1920s; DNA was discovered by Watson and Crick in the 1950s; the human genome was completely sequenced at the turn of the 21st century; and we are now on the verge of being able to obtain the specific DNA sequence of anyone at a relatively low cost. No one knows what this new genetic knowledge will mean for the study of nature–nurture, but as we will see in the next section, answers to nature–nurture questions have turned out to be far more difficult and mysterious than anyone imagined.

About Nature–Nurture

It would be satisfying to be able to say that nature–nurture studies have given us conclusive and complete evidence about where traits come from, with some traits clearly resulting from genetics and others almost entirely from environmental factors, such as childrearing practices and personal will; but that is not the case. Instead, everything has turned out to have some footing in genetics. The more genetically-related people are, the more similar they are—for everything: height, weight, intelligence, personality, mental illness, etc. Sure, it seems like common sense that some traits have a genetic bias. For example, adopted children resemble their biological parents even if they have never met them, and identical twins are more similar to each other than are fraternal twins.

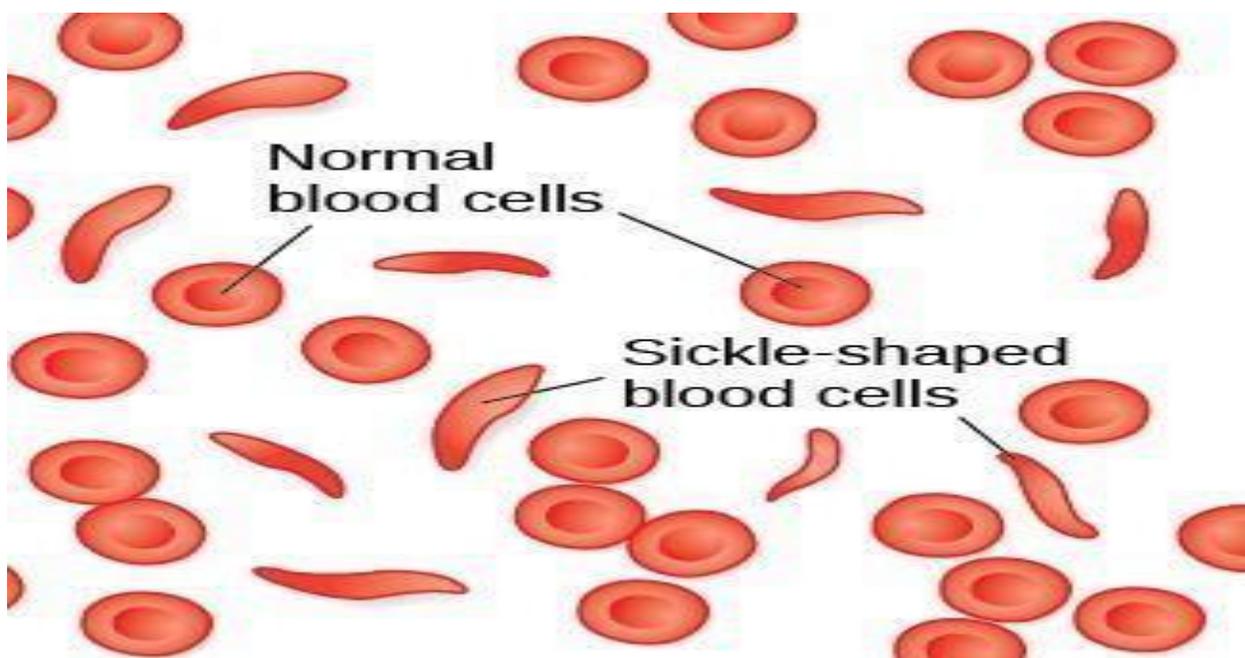
And while certain psychological traits, such as personality or mental illness (e.g., schizophrenia), seem reasonably influenced by genetics, it turns out that the same is true for political attitudes, how much television people watch (Plomin, Corley, DeFries, & Fulker, 1990), and whether or not they get divorced (McGue & Lykken, 1992). It may seem surprising, but genetic influence on behavior is a relatively recent discovery. In the middle of the 20th century, psychology was dominated by the doctrine of behaviorism, which held that behavior could only be explained in terms of environmental factors. Psychiatry concentrated on psychoanalysis, which probed for roots of behavior in individuals' early life-histories. The truth is, neither behaviorism nor psychoanalysis is incompatible with genetic influences on behavior, and neither Freud nor Skinner was naive about the importance of organic processes in behavior. Nevertheless, in their day it was widely thought that children's personalities were shaped entirely by imitating their parents' behavior, and that schizophrenia was caused by certain kinds of "pathological mothering."

Whatever the outcome of our broader discussion of nature–nurture, the basic fact that the best predictors of an adopted child's personality or mental health are found in the biological parents he or she has never met, rather than in the adoptive parents who raised him or her, presents a significant challenge to purely environmental explanations of personality or psychopathology. The message is clear: You can't leave genes out of the equation. But keep in mind, no behavioral traits are completely inherited, so you can't leave the environment out altogether, either. Trying to untangle the various ways nature-nurture influences human behavior can be messy, and often common-sense notions can get in the way of good science. One very significant contribution of behavioral genetics that has changed psychology for good can be very helpful to keep in mind: When your subjects are biologically-related, no matter how clearly a situation may seem to point to environmental influence, it is never safe to interpret a behavior as wholly the result of nurture without further evidence.

For example, when presented with data showing that children whose mothers read to them often

are likely to have better reading scores in third grade, it is tempting to conclude that reading to your kids out loud is important to success in school; this may well be true, but the study as described is inconclusive, because there are genetic as well as environmental pathways between the parenting practices of mothers and the abilities of their children. This is a case where “correlation does not imply causation,” as they say. To establish that reading aloud causes success, a scientist can either study the problem in adoptive families (in which the genetic pathway is absent) or by finding a way to randomly assign children to oral reading conditions. Psychological researchers study genetics in order to better understand the biological basis that contributes to certain behaviors. While all humans share certain biological mechanisms, we are each unique. And while our bodies have many of the same parts—brains and hormones and cells with genetic codes—these are expressed in a wide variety of behaviors, thoughts, and reactions.

Why do two people infected by the same disease have different outcomes: one surviving and one succumbing to the ailment? How are genetic diseases passed through family lines? Are there genetic components to psychological disorders, such as depression or schizophrenia? To what extent might there be a psychological basis to health conditions such as childhood obesity?



To explore these questions, let's start by focusing on a specific disease, sickle-cell anemia, and how it might affect two infected sisters. **Sickle-cell anemia** is a genetic condition in which red blood cells, which are normally round, take on a crescent-like shape (Figure 5). The changed shape of these cells affects how they function: sickle-shaped cells can clog blood vessels and block bloodflow, leading to high fever, severe pain, swelling, and tissue damage.

Figure 5. Normal blood cells travel freely through the blood vessels, while sickle-shaped cells form blockages preventing blood flow. Many people with sickle-cell anemia—and the particular genetic mutation that causes it—die at an early age. While the notion of “survival of the fittest” may suggest that people suffering from this disease have a low survival rate and therefore the disease will become less common, this is not the case. Despite the negative evolutionary effects associated with this genetic mutation, the sickle-cell gene remains relatively common among people of Afri-

candescent. Why is this? The explanation is illustrated with the following scenario. Imagine two young women—Luwi and Sena—sisters in rural Zambia, Africa. Luwi carries the gene for sickle-cell anemia; Sena does not carry the gene. Sickle-cell carriers have one copy of the sickle-cell gene but do not have full-blown sickle-cell anemia. They experience symptoms only if they are severely dehydrated or are deprived of oxygen (as in mountain climbing). Carriers are thought to be immune from malaria (an often deadly disease that is widespread in tropical climates) because changes in their blood chemistry and immune functioning prevent the malaria parasite from having its effects (Gong, Parikh, Rosenthal, & Greenhouse, 2013). However, full-blown sickle-cell anemia, with two copies of the sickle-cell gene, does not provide immunity to malaria.

MCQs

- 1) Higher motor commands originate in all the following centers, except :-
 - a. cerebral cortex
 - b. thalamus
 - c. caudate nucleus
 - d. cerebellumAns:- B

- 2) A reflex action :-
 - a. is a fast brief response to a sensory stimulus
 - b. is involved in regulation of voluntary movements
 - c. includes at least three sequential sets of neurons in its pathway
 - d. is always initiated whenever its specific receptors are effectively stimulated by a specific stimulusAns:- D

- 3) Reflex actions could be classified according to :-
 - a. the type of sensory receptors initiating them
 - b. the type of afferent nerves mediating them
 - c. the type of efferent nerves mediating them
 - d. the type of neurotransmitters mediating themAns:- C

- 4) Events of reflex actions include all the following, except :-
 - a. stimulation of sensory receptors
 - b. stimulation of central synapses
 - c. inhibition of sensory receptors
 - d. inhibition of central synapsesAns:- C

- 5) A reflex arc includes :-
 - a. at least two sets of sequential neurons
 - b. at least two sequential sets of central synapses
 - c. at least two types of sensory receptors
 - d. at least two types of efferent neuronsAns:- A

- 6) The central terminals of afferent neurons mediating spinal reflexes are distributed within the spinal cord, so that :-

- a- all of them terminate in the same spinal segment of their entry to the cord
 - b- all of them terminate on interneurons
 - c- all of them subserve spinal reflexes
 - d- they provide pathways for divergence of the incoming sensory impulses Ans:- D
- 7) Interneurons :-**
- a- provide communication between the central ends of afferent neurons
 - b- provide communication between dendrites of the efferent neurons
 - c- influence the rate of discharge from the alpha motor neurons
 - d- participate in ascending sensory pathways Ans:- C
- 8) The divergence function of interneurons is involved in :-**
- a. temporal summation
 - b- spatial summation
 - c- reverberation
 - d- irradiation Ans:- D
- 9) Interneuron after-discharge circuits prolong the duration of :-**
- a- sensory input to the spinal motor centers
 - b- synaptic delay in central synapses
 - c- discharge of efferent neurons
 - d- conscious perception of the evoked sensation Ans:- C
- 10) A flexor withdrawal reflex shows all the following properties, except :-**
- a. recruitment
 - b- prepotent
 - c- non-fatigable
 - d- irradiation Ans:- C
- 11) Flexor reflexes do not involve :-**
- a. flexor muscles
 - b- extensor muscles
 - c- reciprocal inhibition
 - d- reflex spasm of the involved muscles Ans:- D
- 12) The ability of stronger stimuli to produce wider range of reflex responses depends upon :-**
- a- presence of reverberating circuits in reflex pathway
 - b- presence of parallel-chain circuits in reflex pathway
 - c- convergence of interneurons
 - d- divergence of interneurons Ans:- D
- 13) Recruitment of a reflex response is due to :-**
- a- difference in the amount of presynaptic inputs to the various efferent neurons initiating the

reflex

- b-** difference in the conduction velocity of the various afferent neurons mediating the reflex
- c-** delay at the neuromuscular junction
- d-** presence of inhibitory interneurons in the reflex pathway Ans:- A

14) After-discharge of reflex responses :-

- a-** increase the magnitude of the reflex responses
- b-** delays the onset of fatigue of reflex responses
- c-** involves interneuron circuits
- d-** depends upon spatial summation Ans:- C

15) Central delay of reflex actions :-

- a.** is due to presence of inhibitory interneurons in the reflex pathway
- b-** is the time between stimulation of receptors and response of the effector muscle
- c-** is longer in the flexor reflex than in the stretch reflex
- d-** is determined by the velocity of conduction of impulses along the afferent and efferent neurons in the reflex pathway Ans:- C

16) Fatigue of reflexes :-

- a-** develops gradually and recovers rapidly
- b-** develops rapidly and recovers slowly
- c-** develops gradually and recovers slowly
- d-** develops rapidly and recovers rapidly Ans:- C

17) In flexor withdrawal reflexes contraction of flexor muscles is associated with reciprocal inhibition of :-

- a-** synergistic flexor muscles
- b-** contralateral extensor muscles
- c-** ipsilateral extensor muscles
- d-** both 'a' and 'b' are correct Ans:- C

18) Reciprocal inhibition between reflexes depends upon all the following, except :-

- a-** presence of inhibitory interneurons in the reflex pathways
- b-** presence of excitatory interneurons in the reflex pathways
- c-** presence of anion channels in membranes of the involved neurons
- d-** release of inhibitory transmitters which block cation channels in the reflex pathways Ans:- D

19) stretch reflex is characterized by the following except :-

- a-** disynaptic reflex
- b-** high localization
- c-** shows reciprocal innervations.
- d-** it is of graded response Ans:- A

20) Stretch of an innervated muscle evokes :-

- a- contraction of its spindles
 - b- contraction of its extrafusal fibers
 - c- contraction of antagonistic muscles
 - d- relaxation of synergistic muscles
- Ans:- B

21) Muscle spindles :-

- a- are found in all skeletal muscles
 - b- are found only in large skeletal muscles
 - c- consist of small numbers of extrafusal muscle fibers
 - d- consist of a large number of extrafusal muscle fibers
- Ans:- A

22) The nuclear-bag fibers of muscle spindles are innervated by :-

- a- A γ nerve fibers
 - b- A β nerve fibers
 - c- A δ nerve fibers
 - d- Ia nerve fibers
- Ans:- D

23) The nuclear-chain fibers of spindles are innervated by :-

- a- A α and A δ nerve fibers
 - b- A δ and C nerve fibers
 - c- Ia and II nerve fibers
 - d- only type II nerve fibers
- Ans:- C

24) The central ends of afferents from muscle spindles synapse with all the following types of neurons, except :-

- a- α -motor neurons of the same muscle
 - b- γ -motor neurons of the same muscle
 - c- local interneurons
 - d- 2nd order neurons of ascending sensory pathways
- Ans:- B

25) γ -motor innervation of muscle spindles produces :-

- a- contraction of the central region of the spindle fibers
 - b- increased sensory discharge from the central region of the spindle fibers
 - c- decreased sensory discharge from the central region of the spindle fibers
 - d- relaxation of the peripheral regions of the spindle fibers
- Ans:- B

26) Discharge from muscle spindles could be increased by all the following, except :-

- a- increased α -motor neuron discharge
 - b- increased γ -motor neuron discharge
 - c- stretch of the intrafusal muscle fibers
 - d- stretch of the extrafusal muscle fibers
- Ans:- A

- 27)** Increased γ -motor neuron discharge stimulates muscle spindles, because :-
- a- it produces stretch of the extrafusal muscle fibers
 - b- it causes stretch of the peripheral regions of the intrafusal fibers
 - c- it causes stretch of the central region of the intrafusal fibers
 - d- it stimulates directly the sensory fibers innervating muscle spindles Ans:- C
- 28)** γ -motor neuron discharge to a muscle is inhibited by impulses reaching the γ -motor neurons from all the following source, except :-
- a- Golgi tendon organs of the same muscle
 - b- spindles of antagonistic muscles
 - c- medullary reticular formation
 - d- pontine reticular formation Ans:- D
- 29)** When the γ -motor neuron discharge to a muscle decreases, it causes :-
- a- increased muscle spindle discharge
 - b- shortening of the spindle fibers
 - c- stronger contraction of the extrafusal muscle fibers
 - d- decreased spindle sensitivity to stretch Ans:- D
- 30)** The role of muscle spindles in the maintenance of the upright posture depends upon all the following, except :-
- a- contraction of the peripheral contractile part of spindle fibers
 - b- increased sensory discharge from spindles of postural muscles
 - c- increased supraspinal facilitation to the γ -motor neurons of postural muscles
 - d- presence of greater numbers of spindles in postural muscles Ans:- D
- 31)** The role of γ -motor neurons in regulation of equilibrium is achieved by :-
- a- initiating contraction of spindle fibers which directly antagonize postural deviation
 - b- increasing spindle sensitivity to stretch
 - c- directly stimulating extrafusal muscle fibers to antagonize postural deviation
 - d- directly adjusting the discharge of α -motor neurons innervating the extrafusal muscle fibers to antagonize postural deviation Ans:- B
- 32)** Interruption of γ -motor neuron discharge to a skeletal muscle produces :-
- a- contraction of the muscle
 - b- contraction of the spindle fibers
 - c- relaxation of the spindle fibers
 - d- increased sensory discharge from the spindle fibers Ans:- C
- 33)** Co-activation of α and γ -motor neurons :-
- a. increases γ -motor neuron discharge whenever the activity of α -motor neurons rises to a high level
 - b. is mediated by interneurons that link the α and γ -motor neurons

- c. maintains the proprioceptive information to higher centers during muscle contraction
- d. increases the α -motor neuron discharge whenever the activity of γ -motor neurons rises to a high level Ans:- C

34) Increased sensory discharge from muscle spindles :-

- a- decreases muscle tone
- b- increases muscle tone
- c- could either increase or decrease muscle tone according to the muscle affected
- d- has no effect on muscle tone Ans:- C

35) Interruption of spindle discharge from a muscle causes contraction of the muscle to become jerky and irregular due to :-

- a- increased activity of reverberating circuits causing fluctuation of the motor discharge to the muscle
- b- increased activity of inhibitory interneurons causing oscillating inhibition of the α -motor neurons of the muscle
- c- irregular discharge of excitatory inputs to the α -motor neurons of the muscle
- d- post-tetanic potentiation of the α -motor neurons of the muscle Ans:- C

36) Whenever the position of a joint is stabilized at a certain attitude, the nervous system produces this by :-

- a- increasing the α -motor neuron discharge to all muscles attached to the joint
- b- increasing the γ -motor neuron discharge to all muscles attached to the joint
- c- increasing γ -motor neuron discharge to postural muscles
- d- co-activation of α and γ -motor neurons innervating the involved muscles Ans:- D

37) The highly localized nature of stretch reflex is due to :-

- a- the limited number of interneurons in the reflex pathway
- b- all the central ends of afferents from spindles of the stretched muscle terminate on the α -motor neurons of the muscle
- c- the α -motor neurons of the stretched muscle receive most of the central terminals of afferents coming from spindles of the muscle
- d- activation of inhibitory interneurons which inhibit the motor neurons of the surrounding muscles Ans:- C

38) The shortest reflex time is recorded with :-

- a- a flexor withdrawal reflex
- b- an inverse stretch reflex
- c- a stretch reflex
- d- a scratch reflex Ans:- C

39) When a skeletal muscle is suddenly stretched :-

- a- it relaxes suddenly

- b-** it develops a static stretch reflex
- c-** it develops a dynamic stretch reflex
- d-** it develops clonic contractions Ans:- C

40) Sensory impulses from spindles of a stretched muscle could inhibit antagonistic muscles by :-

- a-** directly inhibiting γ -motor neurons of the antagonistic muscles
- b-** directly inhibiting the α -motor neurons of the antagonistic muscles
- c-** inhibiting the transmitter release from the central terminals of afferents from the spindles of the antagonistic muscles
- d-** activation of inhibitory interneurons Ans:- D

41) Antigravity muscles maintain stretch reflex for prolonged periods without fatigue, because :-

- a-** they are heavily innervated by α -motor neurons
- b-** they obtain their energy needs mainly from anaerobic metabolic processes
- c-** they contain exceptionally high levels of creatine phosphate
- d-** they are rich in mitochondria Ans:- D

42) The discharge from Golgi tendon organs initiated by excessive stretch of a skeletal muscle produces :-

- a-** inhibition of α -motor neurons of antagonistic muscles
- b-** inhibition of γ -motor neurons of antagonistic muscles
- c-** inhibition of α -motor neurons of the same muscle
- d-** stimulation of γ -motor neurons of the same muscle Ans:- C

43) Inverse stretch reflex :-

- a-** increases the possibility of avulsion of the excessively stretched muscle from its bony attachments
- b-** has no reciprocal innervation circuits
- c-** is clinically manifested by lengthening reaction
- d-** is clinically tested by examining the tendon jerks Ans:- C

44) Skeletal muscle tone :-

- a-** is a dynamic stretch reflex
- b-** has a dynamic state
- c-** is increased during rest
- d-** is decreased during standing upright Ans:- B

45) γ -motor neurons control muscle tone by :-

- a-** adjusting the supraspinal facilitatory discharge
- b-** adjusting the α -motor neuron discharge
- c-** adjusting the muscle spindle discharge
- d-** adjusting the activity of interneurons in the reflex arc of muscle tone Ans:- C

46) Adequate level of muscle tone is essential for the accurate performance of voluntary movements, because :-

- a- it adjusts the α -motor neuron discharge initiating voluntary movements
- b- it adjusts posture of proximal joints of the acting limbs
- c- it adjusts the upright posture of the whole body during voluntary movements
- d- it adjusts sensitivity of the spindles of the involved muscles

Ans:- B

47) A tendon jerk :-

- a- is a dynamic stretch reflex
- b- is a static stretch reflex
- c- is evoked by gradually stretching the muscle
- d- is evoked by stimulation of tendon receptors

Ans:- A

48) The tendon jerk which has its center in the 5th and 6th cervical segments of the spinal cord is

- a. the jaw jerk
- b- the deltoid jerk
- c- the biceps jerk
- d- the triceps jerk

Ans:- C

49) Tendon jerks are clinically examined to assess :-

- a- integrity of muscle spindles
- b- integrity of reflex pathway
- c- the total reflex time of the jerk
- d- central delay time of the jerk

Ans:- B

50) Absence of a tendon jerk could result from any of the following conditions, except :-

- a- lesions of supraspinal facilitatory centers
- b- lesions of the efferent neurons
- c- lesions of the afferent neurons
- d- lesions of the spinal nerve centers

Ans:- A

51) Exaggeration of tendon jerks could result from any of the following conditions, except :-

- a- lesions of supraspinal facilitatory centers
- b- lesions of supraspinal inhibitory centers
- c- increased γ -motor neuron discharge
- d- anxiety

Ans:- A

52) Clonus :-

- a- is a sign of decreased supraspinal facilitation
- b- initiated by briefly stretching the tendon of the muscle
- c- is manifested as oscillating mechanical vibrations following tendon jerks
- d- associates exaggeration of tendon jerks

Ans:- D

- 53**) The central nervous system includes all the following components, except :-
- a- spinal cord
 - b- medulla oblongata
 - c- autonomic ganglia
 - d- diencephalon Ans:- C
- 54**) The central nervous system is connected with the peripheral nervous system by all the following types of nerve fibers, except :-
- a- postganglionic autonomic fibers
 - b- preganglionic autonomic fibers
 - c- somatic motor fibers
 - d- autonomic sensory fibers Ans:- A
- 55**) The sensory system is involved in all the following, except :-
- a- initiation of reflex movements
 - b- initiation of voluntary movements
 - c- learning processes
 - d- initiation of emotional responses Ans:- B
- 56)** The two-element sensory receptors differ from other types of receptors in being:-
- a- more numerous
 - b- more widely spread in the body
 - c- more sensitive
 - d- composed of specialized cells at the sensory nerve terminals Ans:- D
- 57)** Sensory receptors are classified functionally according to the following criteria, except :-
- a- their location in the body
 - b- the nature of tissues in which they are found
 - c- the nature of stimuli acting on them
 - d- their connection with cerebral cortex Ans:- A
- 58)** Most sensory receptors :-
- a- are stimulated by different types of stimuli
 - b- are stimulated only by specific stimuli
 - c- possess a high threshold for their specific stimuli
 - d- only 'b' and 'c' are correct Ans:- B
- 59.** A specific stimulus produces a receptor potential by :-
- a- inhibiting Na⁺ influx into receptor
 - b- inhibiting K⁺ efflux from receptor
 - c- enhancing Na⁺ influx into receptor
 - d- enhancing K⁺ efflux from receptor Ans:- C

60) Receptor potential initiated by an adequate stimulus :-

- a- develops always at its full magnitude
- b- undergoes temporal summation only
- c- undergoes spatial summation only
- d- could initiate an action potential Ans:- D

61) Once initiated, the receptor potential :-

- a- spreads to a long distance along the sensory nerve fiber
- b- amplitude is not related to the strength of the stimulus
- c- always generates an action potential from the receptor
- d- stays for a variable period depending on the type of the receptor Ans:- D

62) Receptor potential generates :-

- a- an electrotonic current which is transmitted along sensory fibers to the CNS
- b- a nerve impulse at the receptive region of the receptor
- c- a state of hyperpolarization of the receptor membrane
- d- a nerve impulse at the spike-initiating region of the receptor Ans:- D

63) When stimulated by effective steady stimuli, sensory receptors :-

- a. continuously discharge impulses
- b- stop discharging after a short time
- c- produce an initial high rate of impulse discharge followed by decline of this rate
- d- differ in their response ; some types discharge continuously, while other types do not respond at all Ans:- C

64) Slowly adapting receptors include all the following types, except :-

- a- Golgi tendon organs
- b- warmth receptors
- c- free nerve endings
- d- Meissner corpuscles Ans:- D

65) Slowly adapting receptors differ from rapidly adapting receptors in :-

- a. stopping to discharge after a relatively longer period of constant stimulation
- b- detecting the dynamic properties of stimuli
- c- detecting velocity of stimuli
- d- generating receptor potentials as long as stimulus is applied. Ans:- D

66) Rapidly adapting receptors are involved in :-

- a- static reflex responses
- b- detection of joint movements
- c- regulation of heart rate
- d- only 'a' and 'b' are correct Ans:- B

67) Receptors detect stimulus intensity by :-

- a- lowering the threshold for receptor stimulation
- b- by generating receptor potentials having higher magnitudes
- c- by generating nerve impulses that are transmitted along sensory fibers at higher velocities
- d- by enhancing the central effects of sensory impulses Ans:- B

68) General sensations :-

- a- originate from all sensory receptors of the body
- b- are mediated by somatic sensory fibers only
- c- include the sense of movement
- d- include the sense of equilibrium Ans:- C

69) Detection of the stimulus modality depends upon :-

- a- the location of the receptors in the body
- b- the magnitude of the stimulus
- c- the anatomical connections between the receptors and specific sensory areas in the cerebral cortex
- d- the magnitude of the receptor potential Ans:- C

70) Receptors detect stimulus intensity by :-

- a. lowering the threshold for stimulating receptors
- b. raising the threshold for stimulating receptors
- c. decreasing the magnitude of receptor potential
- d. raising the magnitude of receptor potential Ans:- D

71) The ability to localize the site of stimuli depends upon :-

- a- the type of the stimulated receptor
- b- connections between the receptor and the sensory cortex
- c- the rate of adaptation of the stimulated receptors
- d- the nature of the stimulus Ans:- B

72) Touch receptors :-

- a- are found only in the skin
- b- are all encapsulated receptors
- c- include two-element receptors
- d- are stimulated by vibration Ans:- D

73) Rapidly adapting tactile receptors include all the following types, except :-

- a- Merkel discs
- b- Meissner corpuscles
- c- Pacinian corpuscles
- d- hair end organs Ans:- A

74) Fine touch :-

- a- is detected by slowly adapting touch receptors
- b- is transmitted by the spinothalamic tract
- c- is characterized by its emotional affect
- d- is not involved in feeling the texture of touched objects Ans:- A

75) Crude touch is more effective than fine touch in evoking an emotional response because :-

- a- its provoking stimuli are stronger
- b- its central pathway connects with the limbic system
- c- it is stimulated during emotional excitement
- d- the provoking stimuli have an emotional nature Ans:- B

76) A more developed two-point tactile discrimination :-

- a- indicates a greater threshold distance for feeling of two points of touch applied simultaneously
- b- is seen in the proximal regions of the body compared with the distal regions
- c- is inversely related to the size of the receptive fields of the stimulated sensory units
- d- depends upon the type of the involved touch receptor Ans:- C

77) Proprioceptive sensations include all the following, except :-

- a. position sense
- b- equilibrium sense
- c- movement sense
- d- kinesthetic sense Ans:- B

78) Proprioceptors include all the following types of receptors, except :-

- a- muscle spindles
- b- pressure receptors
- c- vestibular receptors
- d- joint receptors Ans:- C

79) Proprioceptive sensations are transmitted by all the following pathways, except :-

- a- spinothalamic tracts
- b- spinocerebellar tract
- c- gracile tract
- d- cuneocerebellar tract Ans:- A

80) Astereognosis :-

- a- indicates inability to localize the site of touch on the body surface
- b- results from lesions of the secondary somatic sensory area
- c- associates parietal lobe neglect
- d- results from loss of crude touch sensation Ans:- C

81) Parietal lobe neglect :-

- a- is characterized by inability to use skeletal muscles on the opposite side of the body
- b- is characterized by inability to use skeletal muscles on the same side of the body
- c- results from damage of primary sensory cortex.
- d- causes loss of sensations on the same side of the body Ans:- A

82) Tactile receptors include all the following receptors, except :-

- a- free nerve endings
- b- hair follicle receptors
- c- hair cell receptors
- d- Ruffini nerve endings Ans:- C

83) Pain receptors :-

- a- become more sensitive with prolonged stimulation
- b- are stimulated by prostaglandins
- c- are more numerous in viscera than other tissues
- d- include different morphological types Ans:- A

84) Pain threshold :-

- a- is the highest intensity of stimulus that causes pain
- b- is the lowest intensity of stimulus that causes pain
- c- differs markedly among different individuals
- d- is elevated by substance P Ans:- B

85) Fast pain differs from slow pain in :-

- a- being transmitted in the dorsal column pathway
- b- evoking a depressor autonomic reaction
- c- having a sharp quality
- d- arising from encapsulated pain receptors Ans:- C

86) Double pain sensation that is occasionally felt following painful stimulation of the skin is due to :-

- a- repetition of the painful stimulus
- b- presence of dual pain pathways
- c- perception of pain at two different higher centers
- d- application of two painful stimuli simultaneously at two different sites Ans:- B

87) Cutaneous pain :-

- a- is always sharp in character
- b- is transmitted by A δ sensory fibers
- c- is always followed by hyperalgesia
- d- evokes spasm of nearby muscles Ans:- B

- 88)** Primary cutaneous hyperalgesia
- a- develops in the normal skin region around the area of flare
 - b- is an abnormal condition in the skin in which painful stimuli become more severe
 - c- is due to changes in threshold of pain receptors
 - d- is associated with throbbing type of pain Ans:- C
- 89)** Deep pain shows the following characteristics, except :-
- a- dull aching
 - b- throbbing
 - c- evokes flexor reflexes
 - d- diffuse Ans:- C
- 90)** Intermittent Claudications evoke
- a. visceral pain
 - b. deep pain
 - c- cutaneous hyperalgesia
 - d- colicky pain Ans:- B
- 91)** Pain sensation :-
- a- is evoked by strong stimulation of specific receptors
 - b- produces reactions that block transmission of pain impulses
 - c- arises from small encapsulated receptors
 - d- occurs when the stimulus causes damage of the sensory receptors Ans:- A
- 92)** Reaction to pain includes all the following, except :-
- a- increased heart rate
 - b- depression
 - c- withdrawal reflexes
 - d- stoppage of impulse discharge from nociceptors in chronic painful conditions Ans:- D
- 93)** Pain produced by muscle spasm results from :-
- a- mechanical stimulation of pain receptor by muscle spasm
 - b- decreased release of lactic acid from the spastic muscle fibers
 - c- release of compounds from the spastic muscle which increase the threshold for stimulation of pain receptors
 - d- decreased oxygen supply to the muscle Ans:- D
- 94)** Visceral pain :-
- a- is more common than the other types of pain
 - b- arises only from wall of the visceral organs
 - c- is often well localized
 - d- evokes depressor autonomic reactions Ans:- D

95) Stimuli which evoke true visceral pain include all the following, except :-

- a- sharp cutting
 - b- stretching
 - c- spasm
 - d- chemical irritation
- Ans:- A

96) Visceral pain is usually felt :-

- a. deeply in the diseased viscera
 - b- in deep tissues close to the diseased viscera
 - c- in skin areas that just overlie the diseased viscera
 - d- in skin areas remote from the diseased viscera
- Ans:- D

97) Intracranial headache could result from painful stimuli applied on :-

- a- the dura lining the inner surface of the bones of cranial vault
 - b- the brain tissue
 - c- wall of big intracranial veins
 - d- arachnoid mater
- Ans:- C

98) Intracranial headache may result from all the following clinical causes, except :-

- a- decreased CSF pressure
 - b- spasm of scalp muscles
 - c- distension of big venous sinuses
 - d- pressure upon tentorium cerebelli
- Ans:- B

99) Transmitters in pain control system include all the following, except :-

- a- serotonin
 - b- acetylcholine
 - c- enkephalin
 - d- norepinephrine
- Ans:- B

100) Enkephalin binds best with :- a- delta 'δ' opiate receptors

- b- mu 'μ' opiate receptors
 - c- kappa 'κ' opiate receptors
 - d- all opiate receptors with equal affinity
- Ans:- A

101) Pain control system :-

- a- is activated whenever a painful stimulus is applied to body tissues
 - b- is never activated naturally
 - c- is activated only by administration of opiate drugs
 - d- is activated naturally under conditions associated with strong emotional excitement
- Ans:- D

102) Enkephalin blocks pain transmission by :-

- a- blocking the response of pain receptors to painful stimuli
 - b- slowing down transmission of pain impulses through synapses in the pain pathway
 - c- inhibiting the response of the cerebral cortical somatic sensory area to pain signals
 - d- blocking Ca⁺⁺ channels in the central terminals of pain sensory fibers
- Ans:- D

103) The spinal pain gate is :-

- a. Ligand controlled
 - b- voltage controlled
 - c- opened by enkephalin
 - d- closed by substance P
- Ans:- A

104) Thermal sensations :-

- a- are evoked by all changes in environmental temperatures
 - b- are evoked by stimulation of thermo-sensitive pain receptors
 - c- are involved in regulation of metabolic activity
 - d- are transmitted by A β sensory fibers
- Ans:- C

105) Thermal receptors are :-

- a. slowly adapting receptors
 - b- rapidly adapting receptors
 - c- biphasic receptors
 - d- all encapsulated receptors
- Ans:- A

106) Connexons of gap junctions in electric synapses :-

- a- are Ligand-gated
 - b- are voltage-gated
 - c- allow transmission of potential changes in both directions between the pre- and post-synaptic neurons
 - d- close whenever the presynaptic neuron becomes hyperpolarized
- Ans:- C

107) Chemical synapses in the nervous system :-

- a- allow diffusion of chemical substances from the presynaptic neuron into the postsynaptic neuron
 - b- allow transmission of potential changes in one direction only; from the presynaptic to the postsynaptic neurons
 - c- have potential-gated ionic channels
 - d- are more numerous in the peripheral nervous system than the central nervous system
- Ans:- B

108) Synaptic cleft :-

- a. is the space between two synapses on the surface of neurons
- b- allow diffusion of transmitters between neurons

- c- is filled with intracellular fluid
- d- ranges between 20 – 30 μm in width Ans:- B

109) Synaptic knobs :-

- a- synthesize different types of neurotransmitters
- b- release neurotransmitters by diffusion across their membranes
- c- have ligand-gated Ca^{++}
- d- are located at the terminal end of dendrites Ans:- A

110) Synaptic transmission depends upon :-

- a. direct transmission of impulses from the presynaptic neuron to the postsynaptic neuron
- b- diffusion of neurotransmitters from synaptic knobs into the soma and dendrites of postsynaptic neurons
- c- presence of voltage-gated Ca^{++} channels in membrane of synaptic knobs
- d- presence of voltage-gated Ca^{++} channels in the subsynaptic membrane Ans:- C

111) Postsynaptic receptors include all the following types, except :-

- a- G-protein coupled receptors
- b- ligand-gated cation channels
- c- G-protein regulated K^{+} channels
- d- voltage-gated Cl^{-} channels Ans:- D

112) When opened, the ligand-gated cation channels do not allow diffusion of Cl^{-} because :-

- a- the size of Cl^{-} is bigger than the bore of the channels
- b- intracellular negativity causes complete inhibition of Cl^{-} influx
- c- the channels are specific for diffusion of Na^{+} only
- d- the inner surface of the channels is negatively charged Ans:- D

113) Opening of ligand-gated Cl^{-} channels causes :-

- a- inhibition of the postsynaptic neuron
- b- depolarization of the postsynaptic neuron
- c- initiation of an action potential
- d- block of ligand-gated cation channels Ans:- A

114) IPSP differs from EPSP in :-

- a. being of shorter duration
- b- being unable to summate spatially
- c- moving the membrane potential away from threshold
- d- depending upon opening of voltage K^{+} channels Ans:- C

115) When EPSP and IPSP occur simultaneously the postsynaptic membrane :-

- a- becomes depolarized
- b- becomes hyperpolarized

- c- initiates an action potential
- d- shows potential changes that depend upon the summation of their effects Ans:- D

116) When a postsynaptic neuron is adequately stimulated, action potentials develop at the initial segment of the axon because :-

- a- it contains many voltage-gated Na⁺ channels
- b- it contains the highest concentration of ligand-gated cation channels
- c- it contains many voltage-gated Ca⁺⁺ channels
- d- it is more sensitive to the direct stimulant effect of neurotransmitters Ans:- A

117) IPSP could result from :-

- a. opening of K⁺ channels
- b- opening of ligand-gated cation channels
- c- closure of Cl⁻ channels
- d- closure of potential-gated Ca⁺⁺ channels Ans:- A

118) Synaptic transmission terminated by :-

- a- block of presynaptic receptors
- b- elevation of Ca⁺⁺ concentration in synaptic cleft
- c- reuptake of neurotransmitters by postsynaptic neurons
- d- degradation of neurotransmitters by specific enzymes Ans:- D

119) Presynaptic inhibition is characterized by all the following, except :-

- a. increased Cl⁻ influx into presynaptic terminals
- b- increased Ca⁺⁺ influx into presynaptic terminals
- c- decreased response of postsynaptic receptors
- d- hyperpolarization of presynaptic terminals Ans:- B

120) Presynaptic inhibition depends upon :-

- a- augmented release of chemical transmitter from presynaptic terminals
- b- continued depolarization of presynaptic terminals
- c- GABA receptors in presynaptic terminals
- d- opening of voltage-gated Ca⁺⁺ channels in presynaptic terminals Ans:- C

121) In chemical synapses, transmission occurs in a forward direction because :-

- a- neurotransmitter receptors are found only in the postsynaptic membrane
- b- the subsynaptic membrane does not contain neurotransmitter vesicles
- c- the subsynaptic membrane is more sensitive than the membrane of synaptic knob to the effect of neurotransmitters
- d- the subsynaptic membrane contains both ligand-gated and voltage-gated ionic channels
Ans:- B

122) Synaptic delay :-

- a- is the time needed for release of neurotransmitter from synaptic vesicles
- b- the minimal delay time in the central nervous system is about 0.5 millisecond
- c- is determined by the type of the neurotransmitter
- d- is determined by the number of postsynaptic receptors Ans:- B

123) Synaptic fatigue is due to :-

- a. decreased synthesis of neurotransmitters
- b- inability to release neurotransmitters by exocytosis
- c- failure of action potentials to open voltage-gated Ca^{++} channels in presynaptic terminal
- d- imbalance in between rates of synthesis and release of neurotransmitters Ans:- D

124) Synaptic transmission is inhibited by all the following, except

:-

- a- oxygen lack
- b- alkalosis
- c- acidosis
- d- prolonged activity of synapse Ans:- B

125) Post-tetanic Potentiation in synapses :-

- a- is due to increased Ca^{++} concentration in postsynaptic neurons
- b- is due to increased Ca^{++} influx into presynaptic neurons
- c- results from slow prolonged stimulation of synapse
- d- causes fatigue of the synapse Ans:- B

126) Long-term potentiation of synaptic transmission :-

- a- is involved in pain control system
- b- is caused by increased Ca^{++} concentration in presynaptic neurons
- c- results from fast repetitive stimulation of synapse
- d- is associated with decreased Ca^{++} concentration in postsynaptic neurons Ans:- C

127) Drugs which open Cl^- channels in synapses :-

- a- cause depolarization of postsynaptic membrane
- b- cause hyperpolarization of postsynaptic membrane
- c- enhance release of neurotransmitters from synaptic knobs
- d- enhance response of postsynaptic neurons Ans:- B

128) Small-molecule neurotransmitters include all the following types, except :-

- a- Substance P
- b- gamma amino butyric acid
- c- acetylcholine
- d- norepinephrine Ans:- A

129) Neuropeptides :-

- a- are synthesized in the synapticknobs
- b- consist of small molecules
- c- interact with ligand-receptors
- d- could produce prolonged changes in the structure of postsynaptic neurons Ans:- D

130) All the following transmitters are neuropeptides, except :-

- a- neuropeptide Y
- b- somatostatin
- c- dopamine
- d- enkephalin Ans:- C

131) Actions of neuropeptides include all the following, except :-

- a. inhibition of gene transcription
- b- decreased cyclic AMP synthesis
- c- changing intracellular Ca ++ level
- d- activation of ligand-gated receptors Ans:- D

132. What part of a neuron is responsible for receiving information?

- a. axon
- b. terminal fibre
- c. dendrite
- d. myelin sheath Ans:- C

133. Electrical stimulation of the reticular formation would most likely cause an animal to:

- a. sneeze
- b. become blind
- c. wake up if it had been sleeping
- d. stop breathing Ans:- C

134. In evolutionary terms, which is the oldest part of the brain?

- a. the limbic system
- b. the cortex
- c. the right hemisphere
- d. the brain stem Ans:- D

135. The change in electrical charge that occurs in a neuron when a nerve impulse is transmitted is known as the:

- a. action potential
- b. synaptic change
- c. refractory period
- d. ionic charge Ans:- A

136. Schizophrenia and Parkinson's disease are both linked to changes in which

neurotransmitter?

- a. serotonin
 - b. glutamate
 - c. dopamine
 - d. acetylcholine
- Ans:- C

137. The limbic system includes the:

- a. amygdala, hypothalamus, hippocampus
 - b. hypothalamus, medulla, hippocampus
 - c. hippocampus, pons, thalamus
 - d. cerebellum, pons, hypothalamus
- Ans:- A

138. The ___ is to feeling fear as the _____ is to feeling pleasure.

- a. pons/medulla
 - b. amygdala/hypothalamus
 - c. thalamus/hypothalamus
 - d. cerebellum/amygdala
- Ans:- B

139. The effect of neurotransmitters may be:

- a. chemical or electrical
 - b. excitatory or inhibitory
 - c. positive or negative
 - d. active or passive
- Ans:- B

140. The terminal buttons of a neuron are located at the end of its:

- a. axon
 - b. dendrite
 - c. myelin sheath
 - d. nodes of ranvier
- Ans:- A

141. Which lobe is most closely associated with visual processing?

- a. frontal
 - b. temporal
 - c. parietal
 - d. occipital
- Ans:- D

142. Communication within neurons is __, communication between neurons is ____.

- a. excitatory, inhibitory
 - a. frontal
 - b. dorsal
 - c. parietal
 - d. temporal
- Ans:- B

A person who is drunk may have difficulty walking in a straight line because the alcohol has impacted their:

- a. thalamus
 - b. reticular formation
 - c. amygdala
 - d. cerebellum
- Ans:- D

145. Neurotransmitters carry signals across the_____.

- a. refractory gap
 - b. axonal gap
 - c. synaptic gap
 - d. hippocampal gap
- Ans:- C

146. The poison curare is

- a. (n) for the
 - b. inhibitory, excitatory
 - c. chemical, electrical
 - d. electrical, chemical
- Ans:- D

147. Which of the following is NOT a lobe of the brain?
neurotransmitter acetylcholine.

- a. antagonist
 - b. protagonist
 - c. agonist
 - d. cure
- Ans:- A

148. Damage to the hippocampus is most likely to impair:

- a. memory
 - b. balance
 - c. sleep
 - d. breathing
- Ans:- A

149. Which part of the limbic system is involved in an animal's feeling of hunger?

- a. thalamus
 - b. pons
 - c. hippocampus
 - d. hypothalamus
- Ans:- D

150. The___consist of glands that secrete hormones:

- a. nervous system
 - b. immune system
 - c. endocrine system
 - d. cerebral cortex
- Ans:- C

- 151.** Testosterone is to _____ as estrogen is to _.
- a. thyroid, parathyroid
 - b. testes, ovaries
 - c. sympathetic, parasympathetic
 - d. pancreas, pituitary
- Ans:- A
- 152.** What do we call the layer of fatty tissue surrounding the axon of some neurons?
- a. cutaneous coating
 - b. myelin sheath
 - c. dendritic barrier
 - d. synaptic sleeve
- Ans:- B
- 153.** In the context of brain imaging, what does FMRI stand for?
- a. fast moving recovery imaging
 - b. first moveable recording indicator
 - c. flexible motion resistance indicator
 - d. functional magnetic resonance imaging
- Ans:- D
- 154.** Which lobe is primarily responsible for hearing and language?
- a. temporal
 - b. parietal
 - c. frontal
 - d. occipital
- Ans:- A
- 155.** After a car accident, Rhodri had a lot of difficulty planning his day. This is most likely the result of damage to which lobe?
- a. temporal
 - b. parietal
 - c. frontal
 - d. occipital
- Ans:- C
- 156.** Which area of the brain stem controls heart rate and breathing?
- a. reticular formation
 - b. medulla
 - c. pons
 - d. thalamus
- Ans:- B
- 157.** Which structure allows communication between the hemispheres?
- a. reticular formation
 - b. temporal lobe
 - c. contralateral bridge
 - d. corpus callosum
- Ans:- D
- 158.** Which part of the endocrine system is sometimes called the “master gland”?
- a. adrenal gland
 - b. pancreas

- c. pituitary gland
 - d. pineal gland
- Ans:- C

159. Which of the following is NOT part of the endocrine system?

- a. pons
 - b. pancreas
 - c. parathyroid
 - d. pineal gland
- Ans:- A

160. Where would you see the nodes of Ranvier?

- a. on an axon
 - b. in the cell body
 - c. on a dendrite
 - d. a and c
- Ans:- A

161. The brain's ability to change in response to experience or damage is called:

- a. lateralization
 - b. lesioning
 - c. neuroplasticity
 - d. functionality
- Ans:- C

162. Which is the most common neurotransmitter in the brain?

- a. serotonin
 - b. glutamate
 - c. dopamine
 - d. GABA
- Ans:- B

163. Reductionist and materialist approaches to the study of psychological phenomena led psychology to look for explanations in terms of

- a. physiological properties
 - b. psychological properties
 - c. evolution
 - d. social factors
- Answer: A

164. Donders (1818–89) introduced psychology to the concept of being able to ascertain the exact duration of a mental judgement following the presentation of a stimulus. This is referred to as

- a. mental chronometry
 - b. zietgerber
 - c. reaction time
 - d. mental synchronicity
- Answer: A

165. Fechner also proposed the idea that the physical intensity of a physical stimulus is NOT accurately reflected in our perceived intensity of the stimulus. To measure perceived intensity, he proposed the idea of perceptual discrimination – being able to detect changes in the physical intensity itself. The unit of measure was referred to as the

- a. Just Negligible Discrepancy
 - b. Just Noticeable Discrepancy
 - c. Just Noticeable Difference
 - d. Just Negligible Difference
- Answer: C

166. Francis Galton and Alfred Binet also developed methods for measuring and quantifying

- a. personality
 - b. intelligence
 - c. locus of control
 - d. gender
- Answer: B

167. An example of a psychological phenomenon that Wundt proposed was beyond experimental or objective scientific methodology is

- a. complex feelings
 - b. drug--neuron interaction
 - c. altruistic behaviour
 - d. adrenal output
- Answer: A

168. Wundt also emphasised the importance of researching individuals in their ___ and _____ contexts in order to fully appreciate psychological phenomena.

- a. private, social
 - b. private, environmental
 - c. social, cultural
 - d. social, family
- Answer: C

169. Freud's hysteria is now referred to as

- a. dissociative disorder
 - b. personality disorder
 - c. neuroticism
 - d. psychoticism
- Answer: A

170. What did Freud believe to be the cause of hysteria?

- a. neurochemical imbalance
 - b. faulty cognition
 - c. unconscious content
 - d. negative reinforcement
- Answer: C

171. Freud was the founder of a form of talking therapy that aims to help the patient to coax unconscious desires into the conscious awareness. This form of therapy is known as

- a. behaviourism
 - b. humanistic therapy
 - c. transpersonalism
 - d. psychoanalysis
- Answer: D

172. What is the key tenet of Freud's psychoanalytic therapy?

- a. all human behaviour is caused by the Oedipus complex

- b. all human behaviour is caused by unconscious content
- c. all human behaviour is caused by stimulus–response associations
- d. all human behaviour is caused by interactions with the environment Answer: B

173. One of the many means by which Freud analyzed the unconscious content of his patients included

- a. interpreting dreams
- b. gradual exposure
- c. cognitive restructuring
- d. interpreting non-verbal behaviour Answer: A

174. Freud's early ideas regarding the motivation behind human behaviour had important implications for the development of which branch of psychology?

- a. therapeutic psychology
- b. cognitive psychology
- c. atypical psychology
- d. abnormal psychology Answer: D

175. William James's ideas regarding psychological phenomena centred around the idea of

- a. a stream of consciousness
- b. the sea of the subconscious
- c. a stream of subconsciousness
- d. a sea of consciousness Answer: A

176. Two key ideas defined James's concept of a stream of consciousness:

Consciousness has evolved to be

____, in that people choose between alternative courses of action. Consciousness is also____, in that these choices are important in helping the individual to adapt to his/her environment.

- a. selective, functional
- b. functional, selective
- c. transcendent, predetermined
- d. predetermined, transcendent Answer: A

177. The debate over whether our behaviour and thinking are controlled by physiological, unconscious and environmental forces versus being able to behave and think as we wish, is referred to as

- a. the reductionist-determinism debate
- b. the freewill-determinism debate
- c. the biological-freewill debate
- d. the freewill-reductionism debate Answer: B

178. What was the goal of the behaviourist approach to psychology?

- a. to use self-reports of experiences
- b. to objectively predict behaviour
- c. to condition humans to salivate upon the mere presentation of food
- d. to demonstrate the role of freewill in human behaviour via controlled experiments Answer: B

- 179.** Pavlov's work in demonstrating behaviourist principles regarding the relationship between stimuli and behavioural responses became known as
- a. operant conditioning
 - b. associative learning
 - c. classical conditioning
 - d. shaping
- Answer: C
- 180.** Thorndike's work demonstrated another form of behaviourist learning, whereby organisms can be trained to display a specific behavioural response more frequently if the outcome of that behaviour led to the acquisition of a desirable reward. This form of conditioned learning is now referred to as
- a. operant conditioning
 - b. classical conditioning
 - c. positive reinforcement
 - d. social learning
- Answer: A
- 181.** Bartlett, Piaget and Gestalt psychologists like Lewin and Zeigarnik are examples of key figures in psychology who challenged the behaviourist notion that certain processes play no role in determining human behaviour. Which processes are these?
- a. biological processes
 - b. mental processes
 - c. environmental processes
 - d. sociocultural processes
- Answer: B
- 182.** A key weakness of behaviourist theories is
- a. explaining human behaviour based on observations of animal behaviour
 - b. an overwhelming focus on cognitive processes
 - c. the use of self-reported data
 - d. its positive view of all human behaviour
- Answer: A
- 183.** Following criticisms of behaviourism, what was the new approach to exploring psychological phenomena to gain momentum?
- a. cognitive science
 - b. psychoanalysis
 - c. transpersonalism
 - d. phenomenology
- Answer: A
- 184.** Which of the following is an example of an abstract structure that the cognitive approach considers underpins psychological phenomena?
- a. attitudes
 - b. neuronal receptors
 - c. nervous system
 - d. hormones
- Answer: A
- 185.** One of the key methods that cognitive approaches to psychology utilize in order to link sub-

- jective mental phenomena to brain function is
- a. implicit association tests
 - b. neurosurgery
 - c. extrasensory perception
 - d. cognitive neuroscience
- Answer: D
- 186.** Humanistic psychologists argue that in order to properly understand human nature, we need to take account of
- a. subjective human experience
 - b. underlying mental disturbances
 - c. inherent gender differences
 - d. repressed animal instincts
- Answer: A
- 187.** Key figures in psychology who propelled humanism include
- a. Laurel and Hardy
 - b. Maslow and Rogers
 - c. Pegg and Frost
 - d. Watson and Skinner
- Answer: B
- 188.** Which of the following does Rogers NOT list as a feature of a psychologically healthy person?
- a. spontaneity and flexibility
 - b. creativity
 - c. a firm belief in his/her own importance
 - d. the will to follow his/her own instincts
- Answer: C
- 189.** The concept that modern psychologists will usually use techniques that best fit the problem they're investigating is referred to as
- a. expedient psychology
 - b. the path of least resistance
 - c. pragmatic psychology
 - d. the limited horizon hypothesis
- Answer: C
- 190.** Frederic Bartlett carried out an investigation that demonstrated how the accuracy of a person's recall of details from a story could be significantly distorted by
- a. whether or not someone has eaten in the last hour
 - b. the temperature of the room where the experiment was conducted
 - c. the cultural background of the person hearing the story
 - d. the current phase of the moon
- Answer: C
- 191.** What research method has been associated with psychology's return to a focus on the importance of subjective psychological phenomena?
- a. qualitative
 - b. self-reports
 - c. face-to-face interviews
 - d. psychometrics
- Answer: A

192. The most important historical figure to develop the idea of evolution is

- a. Darwin
 - b. Mendel
 - c. Crick
 - d. Buss
- Answer: A

193. System of the body which coordinates and controls its activity is known as _

- a) Organ system
 - b) Muscular system
 - c) Nervous tissue
 - d) Nervous system
- Answer: d

Explanation: Nervous system is the one which is responsible for all the activities of the body. It coordinates and controls the activities of the animal.

194. Peripheral nervous system consists of the brain and spinal cord.

- a) True
 - b) False
- Answer: b

Explanation: Nervous system has two subdivisions, i.e., CNS and PNS. CNS or central nervous system consists of the brain and spinal cord while PNS or peripheral nervous system includes all nervous tissues outside the CNS.

195. Which of the following is NOT the component of the PNS?

- a) Elastic connective tissue
 - b) Cranial nerves
 - c) Spinal nerves
 - d) Ganglia
- Answer: a

Explanation: Peripheral nervous tissue consists of all nervous tissue outside the central nervous system. The main components of PNS are spinal nerves and their branches, cranial nerves and their branches, sensory receptors, and ganglia.

196. Name the basic structural and functional unit of the nervous system.

- a) Neuroglia
 - b) Glial cells
 - c) Neurons
 - d) Perikaryon
- Answer: c

Explanation: Nervous system has been composed of two types of cells, i.e., neurons and neuroglia. Neurons are the basic functional and structural unit of the nervous system.

197. Which of the following cells supports, nourishes, and protect the neurons?

- a) Nissl bodies
- b) Perikaryon
- c) Ganglia

d) Glial cells Answer: d

Explanation: Glial cells (glia = glue) are also called neuroglia, these cells support, nourish, and protect the neurons while ganglia are the cluster of cell bodies which are found in the PNS.

198. What is the speed of nerve impulse?

- a) 60 m/s
 - b) 0.5 – 130 m/s
 - c) 10-30 m/s
 - d) 50 -150 m/s
- Answer: b

Explanation: Nerve impulse or action potential is the electrical signal which travels through the membrane of the neurons. The speed of these signals ranges from 0.5 to 130 m/s.

199. What are Nissl bodies?

- a) Golgi bodies
 - b) Lysosomes
 - c) Cluster of rough endoplasmic reticulum
 - d) Mitochondria
- Answer: c

Explanation: Neurons are made up of three parts, i.e., cell body, dendrites, and axon. The cell body consists of ribosomes and a cluster of endoplasmic reticulum, which is known as Nissl bodies.

200. Which of the following is NOT found in axon?

- a) Endoplasmic reticulum
 - b) Neurofibrils
 - c) Mitochondria
 - d) Microtubules
- Answer: a

Explanation: Endoplasmic reticulum is not present in axons as it does not synthesize protein. An axon contains mitochondria, neurofibrils, and microtubules and the cytoplasm of an axon is called axoplasm.

201. Name the multipolar neuron which is located entirely within the central nervous system.

- a) Motor neuron
 - b) Efferent neuron
 - c) Afferent neuron
 - d) Interneuron
- Answer: d

Explanation: Interneurons are the multipolar neurons, which are found within the CNS. Motor neurons are also known as efferent neurons, they transfer signals from the CNS to effector organs.

202. Out of the following, which one does not affect the speed of conduction of nerve impulse.

- a) No. of ganglia
 - b) Myelin sheath
 - c) Axon diameter
 - d) Temperature
- Answer: a

Explanation: The speed of conduction of nerve impulse depends upon three factors, i.e., myelin sheath, temperature, and axon diameter. Higher the temperature higher would be the speed and

also larger the diameter higher the speed.

203. The eyes are the most complex sense organ of the body.

- a) True
- b) False

Answer: a

Explanation: There are number of receptors in the eye, the lens concentrates light on these receptors which thusly made a motivation. This drive goes to the cerebrum and produces pictures.

204. Which of the following is known as the “window of the brain”?

- a) Sensory organs
- b) Cranial nerves
- c) Eyes
- d) Ganglia

Answer: a

Explanation: Sensory organs are considered as the “window of the brain”. When external stimuli contacted with sensory receptors, it sends signals to the brain in the form of nerve impulse which results in the sensation.

205. Which of the following helps in maintaining the shape of the eye?

- a) Neuroglia
- b) Aqueous humor
- c) Vitreous humor
- d) Perikaryon

Answer: c

Explanation: Vitreous humor is a viscous mass that helps in maintaining the shape of the eye. The lens is surrounded by the aqueous humor from one side and vitreous humor from the other side.

206. Mark the INCORRECT statement about the lens?

- a) Protein found in the lens are α , β , and γ crystalline
- b) Composed of water and proteins
- c) Mainly made up of water
- d) It has a blood supply

Answer: d

Explanation: Though lens does not have a blood supply, it is active. Lens is basically made up of water and protein and many vertebrates have lens protein α , β , and γ crystalline.

207. What is Sclera?

- a) Cornea
- b) White part of the eye
- c) Red part of the eye
- d) Lens

Answer: b

Explanation: Sclera is the white part of the eye which covers the entire eye except for cornea and is made up of collagen fibers and fibroblast.

208. Name the part of the eye, which is involved in focusing light on the retina?

- a) Sclera
- b) Iris
- c) Cornea
- d) Ciliary muscles

Answer: c

Explanation: Fibrous tunic is composed of anterior cornea and posterior sclera. It is a surface coating of an eyeball. Transparent cornea covered colored iris and it helps in focussing light on the retina.

209. Iris is found in which layer of the eyeball?

- a) Vascular tunic
- b) Retina
- c) Fibrous tunic
- d) Microtubules

Answer: a

Explanation: Eyeball is made up of three layers, i.e., fibrous tunic, vascular tunic, and retina. The middle layer of the eyeball is a vascular tunic. It consists of three parts: ciliary body, iris, and choroid.

210. Among the following, which is one is more vascularized and pigmented.

- a) Cornea
- b) Iris
- c) Ciliary body
- d) Choroid

Answer: d

Explanation: Choroid is highly pigmented with melanin and vascularized structure which forms the posterior region of vascular tunic. It absorbs scattered light and also supplies blood.

211. Name the part of the eye which produces aqueous fluid that fills the front part of the eye.

- a) Ciliary body
- b) Cornea
- c) Vitreous humor
- d) Uvea

Answer: a

Explanation: In the back locale of vascular tunic choroid end up a ciliary body. Ciliary body produces the watery liquid that fills the front piece of the eye and it is likewise situated behind the iris.

212. In human ear, secretion of wax is done by_

- a) Cochlea
- b) Vestibule
- c) Basilar membrane
- d) Ceruminous glands

Answer: d

Explanation: Human ear has the number of sweat glands called ceruminous glands. These glands are present on the skin from exterior to interior part. The secretion of these glands called cerumen or wax.

213. Human ear converts sound energy to mechanical energy which is transmitted to the brain through nerve impulse.

a) True

b) False Answer: a

Explanation: The human ear works as a transducer which converts sound energy into mechanical energy to a nerve impulse which is further detected by the brain.

214. Conversion of vibrations into compressed wave takes place in which part of human ear?

a) Inner ear

b) Middle ear

c) Outer ear

d) Exterior ear Answer: a

Explanation: Ear is broadly divided into three parts that are outer, middle, and inner. Sound wave goes through the outer ear gets converted to vibration by middle ear. Passing of vibration to inner ear further converts it in the form of compressed wave.

215. Name the light absorbing pigment present in the Rods?

a) Neuroglia

b) Aqueous humor

c) Rhodopsin

d) Perikaryon View Answer Answer: c

Explanation: The light absorbing pigment present in the rods is rhodopsin and it is also a G-protein coupled receptor which upon activation activates transducin.

216. Name the G- protein, which takes part in vision?

a) Ethylene

b) Adenosine

c) Acetylcholine

d) Transducin Answer: d

Explanation: Rhodopsin activates molecules of transducin which further activates an enzyme to breakdown cyclic GMP. The drop in cyclic GMP will open sodium channel which is responsible for vision.

217. What is the absorption peak of green absorbing cones?

a) 565 nm

b) 535 nm

c) 768 nm

d) 440 nm Answer: b

Explanation: The color vision of our eye is dependent on the three types of cones, i.e., green absorbing, red absorbing cones, and blue absorbing cones.

218. Which of the following is NOT true for Rods?

a) Used for scotopic vision

b) Loss causes night blindness

c) Not very light sensitive

d) Confer achromatic vision Answer: c

Explanation: Rods are very light sensitive while cones are not that much light sensitive. Cones enable us to see colors by producing sharpest images.

219. Name the tiny bone of the middle ear, which convert sound into vibration?

a) Stapes

b) Malleus

c) Incus

d) Anvil Answer: a

Explanation: The space of the middle ear is filled with air where the tympanic membrane separates the inner and external ear. Eardrum transfer sound energy to middle ear, which in turn convert it to vibrate.

220. Organs involve in the sensation of the body is known as

a) Organ system

b) Muscular system

c) Nervous tissue

d) Sensory organs Answer: d

Explanation: Those organs which include hearing, seeing, taste and smell are known as sensory organs. For ex: eye, ear, nose, skin, and tongue.

221. Name the hormone which takes part in the release of FSH and LH from the anterior pituitary.

a) Growth hormone

b) GnRH

c) Somatostatin

d) TRH Answer: b

Explanation: GnRH is Gonadotropin Releasing Hormone, which is responsible for the release of follicle stimulating hormone (FSH), and luteinizing hormone (LH).

222. Chemical messengers secreted by ductless glands are called _____

a) Lymph

b) Platelets

c) Plasma

d) Hormones Answer: d

Explanation: Hormones are the chemical messengers which are secreted by the ductless glands called endocrine glands. These glands are controlled by the endocrine system.

223. Endocrine glands secrete products into the ducts and transfer it into body cavities.

a) True

b) False Answer: b

Explanation: Endocrine glands are called ductless glands. They secrete their products directly into the bloodstreams and circulate in the body.

224. Which of the following is NOT an endocrine gland?

- a) Hypothalamus
 - b) Pituitary
 - c) Parathyroid
 - d) Pancreas
- Answer: a

Explanation: All of them are endocrine glands except hypothalamus. Hypothalamus and thymus are not classified as an endocrine gland, but included in the endocrine system as they involve in the secretion of hormones.

225. Which of this statement is INCORRECT regarding the function of hormones?

- a) Reproduction and sexual differentiation
 - b) Maintenance of internal environment
 - c) Maintain body temperature
 - d) Development and growth
- Answer: c

Explanation: Hormones are released by specialized cells of the endocrine glands and act on distantly located target cells. A single hormone can contribute many functions and sometimes many hormones can perform a single function.

226. Mark the one, which is NOT the precursor of the hormone?

- a) Amino acids
 - b) Cholesterol
 - c) Phospholipids
 - d) Proteins
- Answer: d

Explanation: Chemically, hormone can be divided into two categories, i.e., lipid soluble and water soluble hormones.

227. What is the precursor of steroid hormone?

- a) Protein
 - b) Cholesterol
 - c) Carbohydrate
 - d) Lipid
- Answer: b

Explanation: Cholesterol acts as a precursor of steroid hormone. DHEA is a natural steroid hormone which is synthesized from cholesterol.

228. Which of the is a fat soluble hormone?

- a) Amine hormone
 - b) Peptide hormone
 - c) Thyroid hormone
 - d) Protein hormone
- Answer: c

Explanation: Thyroid is a lipid soluble hormone while amine, peptide, and protein hormones are water soluble, ranging from size 3 to over 200 amino acids.

229. Name the hormone which is synthesized from histidine amino acid?

- a) Histamine
- b) Epinephrine
- c) Norepinephrine
- d) Dopamine

Answer: a

Explanation: Epinephrine, norepinephrine, and dopamine are amine hormones, which are synthesized by modifying amino acid tyrosine.

230. Which of the following is protein hormone?

- a) Oxytocin
- b) Insulin
- c) TSH
- d) Antidiuretic hormone

Answer: b

Explanation: Insulin and human growth hormones are protein hormone while oxytocin and antidiuretic hormones are peptide hormones. TSH or thyroid stimulating hormone has carbohydrate attached to the protein so it comes under glycoprotein hormone.

231. Name the gland, which releases neurohormone.

- a) Hypothalamus
- b) Pituitary
- c) Thyroid
- d) Pancreas

Answer: a

Explanation: Neurohormone are those which changes their function according to their requirements like they can be releasing hormones or inhibiting hormone.

232. Name the process of gaseous exchange in the body.

- a) Lymphatic system
- b) Respiration
- c) Cardiovascular system
- d) Respiratory system

Answer: b

Explanation: Respiration is the process of gaseous exchange in the body while cardiovascular regulates the blood flow throughout the body.

233. Nose, larynx, pharynx, lungs, trachea, and bronchi are the parts of the respiratory system.

- a) True
- b) False

Answer: a

Explanation: Respiratory system consists of all the organs which take part in the respiration. It includes bronchi, trachea, lungs, nose, larynx, and pharynx.

234. Which of the following is NOT the function of the respiratory system?

- a) Regulate blood pH
- b) Helps in gaseous exchange
- c) Protection against blood loss
- d) Contains receptors for the sense of smell

Answer: c

Explanation: Respiratory system helps in regulation of blood, pH, and also contain receptors of smell, produces vocal sound and filter inspired air while cardiovascular system protects against blood loss by the formation of blood clots.

235. Which of this statement is TRUE for pulmonary respiration?

- a) Exchange of gases between alveoli of lungs and the blood
- b) Exchange of gases between blood and tissue cells
- c) Breathing between the atmosphere and the alveoli of the lungs
- d) Production of ATP

Answer: a

Explanation: Pulmonary respiration is the exchange of gases between the alveoli of the lungs and the blood in the capillaries. Exchange of gases between blood and tissue cells occurs in internal respiration.

236. Which of the following controls the normal breathing process?

- a) Amino acids
- b) Cholesterol
- c) Ventral respiratory group
- d) Dorsal respiratory group

Answer: d

Explanation: Ventral respiratory group contains both inspiratory and expiratory neurons and controls forced breathing while dorsal respiratory group contains only inspiratory neurons control normal breathing.

237. Oxygen and hemoglobin bind in a reversible manner to form ___

- a) Carboxyhemoglobin
- b) Oxyhemoglobin
- c) Methoglobin
- d) BPG

Answer: b

Explanation: Oxyhemoglobin is formed by the combination of oxygen and hemoglobin. Oxygen binds to the hemoglobin in a reversible manner. 98% of oxygen is trapped inside RBC.

238. How many oxygen molecules bound to hemoglobin to give 50% saturation?

- a) 6
- b) 4
- c) 2
- d) 7

Answer: c

Explanation: Hemoglobin can bind with maximum 4 oxygen molecules, so for obtaining 50% saturation only 2 molecules of oxygen should be bound to hemoglobin.

239. What is the name of the gland which secretes melatonin?

- a) Pituitary gland
- b) Pineal gland
- c) Thyroid gland
- d) Hypothalamus

Answer: b

Explanation: Pineal gland is the smallest endocrine gland attached to the roof of the brain and secretes melatonin. Melatonin is responsible for settling of the biological clock.

240. Which of the following is Growth hormone inhibiting hormone?

- a) FSH
 - b) TRH
 - c) GHRH
 - d) Somatostatin
- Answer: d

Explanation: Somatostatin works against the growth hormone (GHRH), so it is known as growth inhibiting hormone. It consists of two peptides of 14 and 28 amino acids and is released from neurosecretory nerves.

241. Mark the one, which is not inhibited by the effect of somatostatin.

- a) GH
 - b) TSH
 - c) Glucagon
 - d) Dopamine
- Answer: d

Explanation: Dopamine is prolactin inhibiting hormone (PIH), which inhibits the release of prolactin from the anterior pituitary. It also functions as a neurotransmitter.

242. Gibson's direct theory of perception is important because it shows perception to be

- a. top-down
 - b. constructive
 - c. impoverished
 - d. dynamic
- Answer: D

243. Before light is absorbed by cells in the retina, it travels through a number of structures at the front of the eye. What is the correct order of these structures?

- a. cornea; pupil; lens
 - b. pupil; cornea; lens
 - c. cornea; lens; pupil
 - d. pupil; lens; cornea
- Answer: A

244. What transmits electrical information from the ear to the brain?

- a. outer hair cells
 - b. auditory nerve fibres
 - c. ganglion cells
 - d. rods and cones
- Answer: B

245. How many chambers are there in the human cochlea?

- a. 1
 - b. 2
 - c. 3
 - d. 4
- Answer: C

246. Perception is ...

- a. ... an accurate representation of the world
- b. ... an appropriate representation of the world
- c. ... an adequate representation of the world
- d. ... a native representation of the world Answer: C

247. A driver fails to notice a pedestrian who has just stepped out into the road. This is an example of

- a. change blindness
- b. attentional blindness
- c. space-based attention
- d. inattentional blindness Answer: D

248. In the cochlea, the basal membrane is tonotopic, i.e. sounds are

- a. organized spatially according to frequency
- b. organized in terms of how frequently they fire
- c. organized spatially according to the size of connecting nerve fibres
- d. organized according to left or right ear input Answer: A

249. Which one of the following is NOT a pair of Gestalt psychology principles?

- a. continuity and closure principles
- b. similarity and emergence principles
- c. symmetry and order principles
- d. proximity and eminence principles Answer: D

250. The organ of Corti is responsible for

- a. limiting sound amplitude so as not to damage the inner ear organs
- b. reducing the amount of environmental noise
- c. amplifying attended sounds
- d. converting basilar membrane movement to brain activity Answer: D

251. Name the hormone, which is released by the posterior pituitary.

- a) Oxytocin
- b) TSH
- c) ICSH
- d) Prolactin Answer: a

Explanation: Oxytocin and vasopressin are released by the posterior pituitary. Posterior pituitary does not synthesize hormones, but it can store and release these two hormones.

252. Which area of the temporal lobes is thought to be specialized for processing face-like stimuli?

- a. the fusiform gyrus area (FGA)
- b. the focal face area (FFA)

- c. the fusiform facial area (FFA)
- d. the face formation arena (FFA) Answer: C

253. Which one of the following statements is NOT an account of constructivist perception?

- a. perception is not just sensation, it is an active process
- b. perception is a direct by-product of sensations and hypotheses about the world and how it works
- c. perception is derived from visual information in the optic array
- d. perception is influenced by individual differences Answer: C

254. The auditory ventral stream terminates in

- a. Shatner's bassoon
- b. orbitofrontal cortex
- c. dorsolateral prefrontal cortex
- d. cingulate gyrus Answer: B

255. Rod photoreceptors are principally involved in processing

- a. colour
- b. movement
- c. visual acuity
- d. location Answer: B

256. Cells leaving the eye travel along two major visual routes (and some minor ones). One of these is the lateral geniculate pathway. What is the other major pathway?

- a. The ocular geniculate pathway
- b. The tuberoinfundibular pathway
- c. The mesocortical pathway
- d. The retinotectal pathway Answer: D

257. In the direct theory of perception, information in the visual field that remains constant is the

- a. optic array
- b. optic flow
- c. invariant
- d. affordance Answer: C

258. Two processes that when independently disrupted leave the other one intact are known as

- a. double jeopardy
- b. double entendre
- c. double dissociation
- d. double association Answer: C

259. What is the name for the phenomenon of experiencing one kind of impression when stimulated by a different sensory organ stimulus (e.g. tasting shapes, smelling colour, seeing sounds)?

- a. divided attention
- b. synaesthesia

- c. prosopagnosia
 - d. perceptual load
- Answer: B

260. The fovea contains a concentration of

- a. cones
 - b. rods
 - c. rods and cones
 - d. vitreous humour
- Answer: A

261. Which of the following is NOT an element of Broadbent's theory of attention?

- a. limited capacity processor
 - b. selective filter
 - c. sensory buffer
 - d. spotlight
- Answer: D

262. The direct perception of an object's purpose is the

- a. ecological optic
 - b. affordance
 - c. invariant
 - d. optic array
- Answer: B

263. Glass micro-capillaries are a type of micro electrode.

- a) True
 - b) False
- Answer: a

Explanation: Two types of micro electrodes are generally used: metallic and glass microcapillaries. Metallic electrodes are formed from a fine needle of suitable metal drawn for a fine tip. Glass electrodes are drawn from Pyrex glass of special grade.

264. Glass microcapillaries are preferred over metallic electrodes because of the former _____

- a) polarizes with input current
- b) does not have sustainable current carrying capacity
- c) has less contact surface area
- d) has sustainable current carrying capacity

Answer: d

Explanation: Metallic electrodes polarize with smaller amplifier input currents. Hence, they tend to develop unstable electrode offset potential and are therefore not preferred for steady state potential measurement. On the other hand, in case of glass micro electrodes have a sustainable current carrying capacity because of the large surface area between the metal and the electrolyte.

265. Do metallic micro electrodes exist.

- a) True
 - b) False
- Answer: a

Explanation: Two types of micro electrodes are generally used: metallic and glass microcapillaries. Metallic electrodes are formed from a fine needle of suitable metal drawn for a fine tip. Glass

electrodes are drawn from Pyrex glass of special grade.

266. Metallic micro electrodes have impedance _____ compared to conventional electrodes?

- a) equal
 - b) smaller
 - c) high
 - d) very high
- Answer: d

Explanation: The very high impedance of the metal micro-electrodes is due to the characteristics of the small area metal-electrolyte interface. Because of very high impedance of micro electrodes, amplifiers with extremely high input impedance are required to avoid loading the circuit and to minimize the effects of small change in interface impedance.

267. Which of the following electrode is manufactured by circumferential application of heat to a small area of glass tubing and pulling the glass when it gets soft?

- a) macro metallic electrodes
 - b) micro metallic electrodes
 - c) micro pipette
 - d) surface electrodes
- Answer: c

Explanation: The most commonly used method for making small tip micropipette consists of the circumferential application of heat to a small area of glass tubing which is placed under some initial tension. When the glass softens, the tension is increased very rapidly and the heat is turned off. Proper timing, controlled adjustment of the amount of heat as well as the initial and final tensions and cooling results in the production of microcapillaries with control dimensions.

268. Which of the following metal is preferred for manufacturing micro electrodes?

- a) Stainless steel
 - b) Tungsten
 - c) Iron
 - d) Copper
- Answer: b

Explanation: Tungsten is preferred for constructing micro-electrodes due to its mechanical strength and its apparent inertness. Although tungsten itself is reactive, a surface layer of tungsten oxide will, in most situations, protect the metal against corrosion.

269. _____ are devices which convert one form of energy into another.

- a) transducers
 - b) electrodes
 - c) impulses
 - d) opamp
- Answer: a

Explanation: Transducers are devices which convert one form of energy into another. A number of factors decide the choice of a particular transducer to be used for the study of a specific phenomenon. Many physical, chemical and optical properties and principles can be applied to construct transducers for applications in the medical field.

270. Which type of electrodes are employed to study the electrical activities of individual cells?

- a) milli-electrodes
- b) micro-electrodes
- c) surface-electrodes
- d) pre-jelled electrodes

Answer: b

Explanation: To study the electrical activities of individual cells, micro electrodes are employed. This type of electrode is small enough with respect to the size of the cells. Typical micro electrodes have tip dimensions ranging from 0.5-5 microns.

271. Pulse oximetry is used to measure the oxygen level in blood & heart rate.

- a) True
- b) False

Answer: a

Explanation: Pulse oximetry is a technology used to measure the oxygen level in your blood and your heart rate. A finger pulse oximeter is equipped with technology to rapidly detect changes in your blood oxygen level.

272. Sudden involuntary drop in body core temperature below 35°C (95°F) is called ____

- a) Accidental hyperthermia
- b) Accidental misothermia
- c) Accidental exothermia
- d) Accidental hypothermia

Answer: d

Explanation: Sudden involuntary drop in body core temperature below 35°C (95°F) is called Accidental hypothermia. In this, the body temperature drops very quickly. If not treated on time can lead to patient's death.

273. Which of the following has the widest range of temperature measurement?

- a) RTD
- b) Thermocouple
- c) Thermistor
- d) Mercury thermometer

Answer: b

Explanation: Thermocouple has the widest range of temperature measurement from -184°C to +2300°C. RTD has a range of -200°C to +850°C. Thermistor has a range of 0°C to 100°C where as conventional mercury thermometers range is -37°C to +356°C.

274. The junction at a higher temperature in thermocouple is termed as measuring junction.

- a) True
- b) False

Answer: a

Explanation: The junction at a higher temperature in thermocouple is termed as measuring junction. The junction at lower temperature in the thermocouple is called the reference temperature. The cold junction is usually kept at 0°C.

275. When two wires of different material are joined together at either end, forming two junctions which are maintained at a different temperature, a thermo-motive force is generated causing a current to flow around the circuit. This arrangement is called ____

- a) thermal pair

- b) thermistor
- c) thermocouple
- d) thermostat

Answer: c

Explanation: This arrangement is called thermocouple. The junction at a higher temperature in thermocouple is termed as measuring junction. The junction at lower temperature in the thermocouple is called the referencetemperature.

276. When two wires of different material are joined together at either end, forming two junctions which are maintained at a differenttemperature, a___force is generated.

- a) thermo-motive
- b) electro-motive
- c) chemical reactive
- d) mechanical

Answer: a

Explanation: When two wires of different material are joined together at either end, forming two junctions which are maintained at a different temperature, a thermo- motive force is generated causing acurrent to flow around the circuit.

This arrangement is called thermocouple. The junction at higher temperature in thermocoupleis termed as measuring junction. Thejunction at lower temperature in the thermocouple is called the referencetemperature.

277. The junction at a lower temperature in the thermocouplecalled measuring junction.

- a) True
- b) False

Answer: b

Explanation: The junction at a lowertemperature in the thermocouple iscalled the reference temperature.

The cold junction is usually kept at0°C. The junction at a higher temperature in thermocouple is termed as measuring junction.

278. The lower temperature junctionin thermocouple is maintained at

- a) -273 K
- b) 0 K
- c) -327 K
- d) 273 K

Answer: d

Explanation: The lower temperaturejunction in thermocouple is maintained at 273 K (0°C). The junction at lower temperature in thethermocouple is called the referencetemperature. The junction at higher

temperature in thermocouple istermed as measuring junction.

279. The resistance R_t of a metallicconductor at any temperature t is given by ___

- a) $R_t = R_o(1+\alpha t)$
- b) $R_t = R_o(1-\alpha t)$
- c) $R_t = R_o(\alpha t-1)$
- d) $R_t = R_o(10+\alpha t)$

Answer: a

Explanation: The resistance R_t of a metallic conductor at any temperature t is given by $R_t = R_o(1+\alpha t)$. R_o is the resistance at 0°C. α is temperature coefficient of resistivity.

280. RTD stands for _____

- a) resistance temperature device
- b) resistance temperature detector
- c) reluctance thermal device
- d) resistive thermal detector

Answer: b

Explanation: RTD stands for Resistance Temperature Device. It is a passive sensor and requires current excitation to produce an output voltage. RTD has very low temperature coefficient. Voltage drop across RTD is much larger than thermocouple output voltage.

281. Thermistor is used to measure

- a) temperature
- b) pressure
- c) height
- d) displacement

Answer: a

Explanation: Thermistor is used to measure temperature. It is a temperature transducer. With a change in temperature its resistance changes. Thus its working principle is variable resistance. Thermistors are the oxides of certain metals like manganese, cobalt and nickel which have large negative temperature coefficient, i.e. resistance decreases with increase in temperature.

282. Doppler velocimetry works on the principle of ____

- a) frequency measurement of fiberoptic sensor
- b) amplitude measurement of fiberoptic sensor
- c) phase measurement of fiber optic sensor
- d) time shift measurement of fiberoptic sensor

Answer: a

Explanation: Doppler velocimetry

works on the principle of frequency measurement of fiber optic sensor. In this method, light from a laser, normally helium/neon, is sent via a fibre onto the skin surface. The moving red blood cells scatter the light and produce a Doppler frequency shift because of their movement.

283. Fluoroptic temperature sensors work on the principle of _____

- a) thermistor
- b) thermocouple
- c) optical fiber
- d) rtd

Answer: c

Explanation: Fluoroptic temperature sensors work on the principle of optical fiber sensors. They contain a rare earth phosphor which is illuminated by a white light along a short length of large core optical fibre. The light excites the phosphor which emits a number of lines. By using filters, two of these lines at 540 and 630 nm are selected, and the ratio of their intensities is a single valued function of the temperature of the phosphor.

284. Monopolar needle electrode have a coating of which material over the stainless steel wires which are bare only at the tips?

- a) carbon
- b) calcium
- c) sodium
- d) teflon Answer: d

Explanation: The monopolar needle electrode consists of a teflon coated stainless steel wire. The wire is bare only at the tip. It is found that after the needle has been used a number of times, the teflon coating will recede, increasing the tip area. The needle should be discarded when this happens.

285. Endoscopic imaging uses

- a) thermal sensors
- b) chemical sensors
- c) optic fiber sensors
- d) pressure sensors Answer: c

Explanation: Optic sensors are used for endoscopic imaging. Optical fibre sensors are non-electrical and hence are free from electrical interference usually associated with electronically based sensors. They are suitable for telemetry applications as the bulk of the instrumentation can be at a reasonable distance from the patient.

286. _____ converts biochemical events into measurable signals.

- a) amplifier
- b) opamp
- c) rectifier
- d) transducer Answer: d

Explanation: Transducers convert biochemical events into measurable signals. They provide the means for detecting the biochemical changes inside the body. Particularly biosensors are employed for this purpose.

287. The biological response of the biosensor is determined by _____

- a) biocatalytic membrane
- b) physio-chemical membrane
- c) chemical membrane
- d) artificial membrane Answer: a

Explanation: The biological response of the biosensor is determined by biocatalytic membrane. The biocatalytic membrane accomplishes the conversion of reactant to product. The product of the reaction diffuses to the transducer. This then causes the electrical response.

288. Home blood glucose sensor works on which principle?

- a) electro-physiological
- b) electrochemical
- c) physio-chemical
- d) chemical Answer: b

Explanation: Home blood glucose detection sensor works on the principle of electrochemical. The biosensor in this instrument relies upon enzymes that recognise and catalyze reactions of glucose with the generation of redox – active species that are detected electrochemically.

289. The chemical reaction of glucose with oxygen is catalyzed in the presence of _____

- a) glucose oxidase
 - b) monoglucose carbodase
 - c) glusoce dioxidase
 - d) biglucose oxidase
- Answer: a

Explanation: The chemical reaction of glucose with oxygen is catalyzed in the presence of glucose oxidase. In the presence of glucose oxidase as a catalyst, the glucose and oxygen react and gluconic acid is produced as by product. Hydrogen peroxide (H_2O_2) is also produced in some amount.

290. Home blood glucose measurement devices measure the glucose level through non-invasive method.

- a) True
 - b) False
- Answer: b

Explanation: Home blood glucose measurement devices measure the glucose level through invasive method. There is a small needle at the tip of the machine that pierces the skin to take blood sample. This blood is then undergoes electrochemical reactions and the glucose level is determined.

291. Blood glucose level measurement device uses a biosensor works on the principle of electrochemical.

- a) True
 - b) False
- Answer: a

Explanation: Home blood glucose detection sensor works on the principle of electrochemical. The biosensor in this instrument relies upon enzymes that recognize and catalyze reactions of glucose with the generation of redox – active species that are detected electrochemically.

292. Which of the following is not a fundamental block in recording systems?

- a) electrodes and transducers
 - b) signal conditioner
 - c) analysis for the output
 - d) writing system
- Answer: c

Explanation: Analysis of the output is not a fundamental block on the recording system. First, the signals are collected from the host. Then they are sent for signal conditioning where they are amplified to the desirable range and then the writing system prints the signals.

293. In medical recorders, the signal of interest is of the order of ____

- a) nanovolts
- b) microvolts
- c) megavolts

d) volts Answer: b

Explanation: The signals of interest in medical recorders are in the range of micro volts. They are captured by the help of sensitive electrodes and transducers and then amplified to a certain higher level. After the amplification further processing is carried out.

294. In medical devices, the amplifiers that are used for the amplification purpose of the input signal must have _____

- a)** low frequency response
- b)** high frequency response
- c)** average frequency response
- d)** frequency response has no role to play in it

Answer: a

Explanation: The bioelectric signals in medical science contains components of extremely low frequency. Thus the amplifiers must also have a low frequency response. The response should be down to less than one hertz which is a very frequent requirement.

295. To achieve the low frequency response for medical applications, the amplifier configuration must contain?

- a)** higher resistance
- b)** higher capacitance
- c)** lower resistance
- d)** lower capacitance Answer: b

Explanation: To achieve the low frequency response required for medical applications, the amplifier must have large values of coupling capacitance. In all RC-coupled amplifiers, low frequency response is limited by the reluctance of the coupling capacitors. The response should be down to less than one hertz which is a very frequent requirement.

296. Filter that amplifies frequency above a certain value is called?

- a)** low pass filter
- b)** high pass filter
- c)** band pass filter
- d)** band stop filter Answer: b

Explanation: High pass filter amplifies signal above a certain frequency. Low pass filter amplifies signals below a certain frequency. Band pass filter amplifies frequencies within a certain band. Band stop filter amplifies all the frequencies except those in a certain band.

297. _____ amplifies all the frequencies except those in a certain band.

- a)** high pass filter
- b)** low pass filter
- c)** band pass filter
- d)** band stop filter Answer: d

Explanation: Band stop filter amplifies all the frequencies except those in a certain band. High pass filter amplifies signal above a certain frequency. Low pass filter amplifies signals below a certain frequency.

Band pass filter amplifies frequencies within a certain band.

298. Active filters use opamps in addition to passive components in order to obtain better performance.

a) True

b) False Answer: a

Explanation: True. Active filters use opamps in addition to passive components in order to obtain better performance. Operational amplifiers are frequently used as the gain blocks in active filters. Passive components are resistors capacitors and inductors.

299. Which of the following component is not a part of the passive filter?

a) resistor

b) operational amplifier

c) capacitor

d) inductor Answer: b

Explanation: Operational amplifier is not a part of passive filters. It is a part of an active filter. Passive components are resistors capacitors and inductors. Active filters use opamps in addition to passive components in order to obtain better performance.

300. Light passing through finger will be adsorbed by _____

(i) Skin Pigments

(ii) Tissue

(iii) Arteries

(iv) Veins

a) (i) & (iii)

b) (ii) & (iv)

c) (i) & (ii)

d) (iii) & (iv) Answer: c

Explanation: The two wavelengths assume that only two absorbers are present; namely oxyhaemoglobin (HbO₂) and reduced haemoglobin (Hb). Light passing through the ear or finger will be absorbed by skin pigments, tissue, cartilage, bone, arterial blood, venous blood.

301. How is the blood flow in arteries and arterioles?

a) plug

b) laminar

c) parabolic

d) pulsatile Answer: d

Explanation: Most of the absorbances are fixed and do not change with time. Even blood in the capillaries and veins under steady state metabolic circumstances is constant in composition and flow, at least over short periods of time. Only the blood flow in the arteries and arterioles is pulsatile.

302. The manufacture of adrenalin and noradrenalin is controlled by:

(a) Nervous system

- (b) Endocrine system
- (c) Regulatory system
- (d) Circulatory system Answer: A

303. Repression is a common mode of resolving:

- (a) Anxieties
- (b) Tensions
- (c) Conflicts
- (d) Motives Answer: C

304. The defense mechanisms are reactions to:

- (a) Frustration
- (b) Psychosexual behaviour
- (c) Aggression
- (d) Goal directed behaviour Answer: A

305. Dynamic psychology is the psychology of:

- (a) Motivation and Emotion
- (b) Perception and Attention
- (c) Learning and Memory
- (d) Personality and Intelligence Answer: A

306. Both the terms "emotion" and "motivation" came from the same Latin root:

- (a) Movement
- (b) Move
- (c) Moment
- (d) "Movere" Answer: D

307. According to Lewin, tensions are emotional states which accompany:

- (a) Needs
- (b) Motives
- (c) Goals
- (d) Anxieties Answer: A

308. In avoidance-avoidance conflict, the individual is compelled to choose between:

- (a) One positive and one negative alternative
- (b) Two negative alternatives
- (c) Two positive alternatives
- (d) Two negative alternatives and two positive alternatives Answer: B

309. A releaser is a highly specific stimulus that "triggers" or initiates:

- (a) Response

- (b) Social Behaviour
- (c) Gregariousness
- (d) Species-specific behaviour aboveAnswer: D

310. Who assumed that human motives are arranged in a hierarchy of potency?

- (a) Neal Miller (1959)
- (b) Janis & Mann (1977)
- (c) Jerome Singer (1962)
- (d) A. H. Maslow (1970) Answer: D

311. Corpus luteum and placenta of pregnant women secrete the hormone:

- (a) Estrogens
- (b) Androgens
- (c) Progestins
- (d) Adrenalin Answer: C

312. According to Maslow, the self-actualizing tendency is:

- (a) Instinct
- (b) Imprinting
- (c) Growth Motivation
- (d) Deficiency motivation Answer: C

313. Need for achievement can be measured by:

- (a) Binnet's scale
- (b) Thurstone's scale
- (c) TAT (Thematic Apperception Test)
- (d) Semantic Differential scale Answer: C

314. The desire to be with one's own kind is termed as:

- (a) Gregariousness
- (b) Consumatory behaviour
- (c) Imprinting
- (d) Coolidge Effect Answer: A

315. The type of conflict in which the goal of the individual has both positive and negative valence of approximate equal intensity is known as:

- (a) Approach-avoidance conflicts
- (b) Avoidance-avoidance conflicts
- (c) Approach-approach conflict
- (d) Multiple approach-avoidance conflicts Answer: A

316. A young woman who turns herself into a religious worker has a strong:

- (a) Approach gradient

- (b) Social Motive
- (c) Hypervigilance
- (d) Encephalization Answer: B

317. The author of the hierarchical theory of motivation is:

- (a) O. H. Mowrer
- (b) McClelland
- (c) J. W. Atkinson
- (d) A. H. Maslow Answer: D

318. When progress towards a goal is blocked and underlying tension is unresolved, we speak of:

- (a) Frustration
- (b) Critical Period
- (c) Goal
- (d) Restriction Answer: A

319. Survival needs activate the organism to:

- (a) Provide for physiological deficits
- (b) Seek pleasure
- (c) Avoid pain
- (d) Gain status and recognition Answer: A

320. Motives can be:

- (a) Inferred from behaviour
- (b) Observed directly
- (c) Used to explain behaviour
- (d) Used to predict behaviour Answer: A

321. A motivated behaviour is directed towards:

- (a) Situation
- (b) Object
- (c) Goal
- (d) Group Answer: C

322. Needs, drives or motives:

- (a) Can be directly observed
- (b) Cannot be directly observed
- (c) Are always dormant
- (d) Are same Answer: B

323. Gregariousness is a/an:

- (a) Social motive
- (d) Biological motive

- (c) Psychological motive
- (d) Personal motive Answer: A

324. Individual's life goal is:

- (a) Social Motive
- (b) Biological Motive
- (c) Personal Motive
- (d) An Instinct Answer: C

325. When the motive has a biological or physiological basis, it is called a/an:

- (a) Drive
- (b) Incentive
- (c) Imprinting
- (d) Libido Answer: A

326. Motives are never observed directly; but they are inferred from:

- (a) Stimulus
- (b) Conflict
- (c) Tension
- (d) Behaviour Answer: D

327. The first stage of motivational cycle is:

- (a) Drive state
- (b) Instrumental behaviour
- (c) Goal
- (d) Frustration Answer: A

328. In studying motivation, we attempt to answer:

- (a) The broadest "why" question of behaviour
- (b) The innate releasing mechanism
- (c) Fixed-action pattern
- (d) Displacement behaviour Answer: A

329. The level of arousal is maintained by a structure in the brain stem called the:

- (a) Pons
- (b) Lymbic system
- (c) Reticular activating system
- (d) Cerebellum Answer: C

330. Motivation can be understood as an interaction between:

- (a) Arousal and Effort
- (b) Vactor and Valence

- (c) Life space and Approach gradient
- (d) Approach gradient and avoidance gradient Answer: A

331. Many years ago, an American Psychologist did a study in Orissa in which he found that achievement needs are higher in the business caste. What is his name?

- (a) Lewis
- (b) Mowerer
- (c) Maslow
- (d) Mc Clelland Answer: D

332. A desire to achieve success and to meet some inner standard of excellence is a good definition of the:

- (a) Achievement Need (n ACH):
- (b) Fixed-Action pattern
- (c) Displacement behaviour
- (d) Encephalization Answer: A

333. The “need for success”, “expectancy for success” and the “incentive value of success” are three motivational factors which determine the strength of:

- (a) Social Motives
- (b) Biological Motives
- (c) Personal Motives
- (d) Achievement Need Answer: D

334. The need to achieve is jointly determined by:

- (a) The expectation of success and the fear of failure
- (b) The blocking of behaviour and fear of failure
- (c) The drive stimulus and approach gradient
- (d) The innate releasing mechanism and frustration Answer: A

335. Social conformity can be described as a reverse:

- (a) J-curve
- (b) S-curve
- (c) U-curve
- (d) T-curve Answer: A

336. F. H. Allport (1935) described social conformity as the:

- (a) S-curve hypothesis
- (b) V-curve hypothesis
- (c) U-curve hypothesis
- (d) J-curve hypothesis Answer: D

337. As motivation is closely related to effort, the emotion is related to:

- (a) Arousal
- (b) Instinct
- (c) Displacement behaviour
- (d) Conflict Answer: A

338. Fritz Heider, an Austrian psychologist, has given us a greatdeal of insight into:

- (a) Imprinting
- (b) Critical period
- (c) Interpersonal relationships
- (d) Coolidge Effect Answer: C

339. A motive ethnologically meansthat

- (a) Which moves
- (b) Which distracts
- (c) Which drives
- (d) Which stimulates Answer: A

340. Since motives activate the organism, they are also known asthe:

- (a) Outer dynamics
- (b) Drive stimulus
- (c) Inner dynamics
- (d) Approach gradient Answer: C

341. The second stage of the motivational cycle is called the:

- (a) Goal
- (b) Instrumental Behaviour
- (c) Driving State
- (d) Relief Answer: B

342. Prolactin, a hormone from theanterior pituitary gland plays an important role in motivating:

- (a) Maternal behaviour
- (b) Imprinting
- (c) Instinct
- (d) Consummatory behaviour Answer: A

343. Behaviour of the mentally illpersons is greatly influenced by their:

- (a) Conscious motives
- (b) Innate Releasing Mechanism
- (c) Unconscious motives
- (d) Fixed-action pattern Answer: C

344. Generally we infer needs anddesires from:

- (a) Covert behaviour
- (b) Approach gradient
- (c) Drive stimulus
- (d) Overt Behaviour Answer: D

345. Physiologists use the term homeostasis to describe the body's tendency to maintain a balance or equilibrium among its:

- (a) External physiological status and environment
- (b) Internal physiological status and the environment
- (c) Displacement behaviour and cephalization
- (d) Approach gradient and avoidance gradient Answer: B

346. The relative strength of the drives of hunger, thirst and sex have been studied experimentally in the white rat by:

- (a) Learning Method
- (b) Obstruction Method
- (c) Activity wheel
- (d) The choice and Preference Method Answer: B

347. The technique by which the strength of need is measured in terms of readiness with which a task is learned under different conditions of motivation is known as:

- (a) Activity wheel
- (b) Obstruction method
- (c) The choice and Preference Method
- (d) Learning Method Answer: D

348. The technique for the measurement of needs by which the strength of a need is measured in terms of the magnitude of an obstacle or the number of times an obstacle of a given magnitude will be overcome in order to obtain a needed object is known as:

- (a) Learning Method
- (b) Obstruction method
- (c) Activity wheel
- (d) The choice and Preference Method Answer: B

349. A tension within an organism which tends to organize the field of the organism with respect to certain incentives or goals and to incite activity directed towards their attainment is called:

- (a) Need
- (b) Imprinting
- (c) Libido
- (d) Valence Answer: A

350. An intraorganic activity or condition of tissue supplying stimulation for a particular type of behaviour is known as:

- (a) Need
- (b) Motive
- (c) Drive
- (d) Conflict Answer: C

351. Maslow viewed that motivated behaviour is:

- (a) Need related
- (b) A vector
- (c) A valence
- (d) An approach gradient Answer: A

UNIT – 5

**ATTENTION,
PERCEPTION, LEARNING,
MEMORY, AND
FORGETTING**

ATTENTION, PERCEPTION, LEARNING, MEMORY AND FORGETTING

WHAT IS ATTENTION: FORMS OF ATTENTION, MODELS OF ATTENTION ?

ATTENTION: FORMS OF ATTENTION, MODELS OF ATTENTION

Understanding attention and its types are critical for improving our ability to live our lives efficiently. In order to fully master the attention mechanism, it is also necessary to learn both the external or internal factors that strengthen and affect it.

Attention can generally be defined as the ability to produce, select, manage and maintain sufficient stimulation at a specific amount of time to process any kind of information. It takes place on the cognitive level and has different types.

Attention is the key to achieve optimum functionality in our lives. The way to do this is to parse the factors or stimuli we encounter as relevant or irrelevant. Actually, this is when we make the most basic choices regarding the topics we are interested in or not.

VISUAL ATTENTION

Generally speaking, visual attention is thought to operate as a two-stage process. In the first stage, attention is distributed uniformly over the external visual scene and the processing of information. In the second stage, attention is concentrated to a specific area of the visual scene; it is focused on a specific stimulus. There are two major models for understanding how visual attention operates, both of which are loose metaphors for the actual neural processes occurring.

SPOTLIGHT MODEL

The term "spotlight" was inspired by the work of William James, who described attention as having a focus, a margin, and a fringe. The focus is the central area that extracts "high-resolution" information from the visual scene where attention is directed. Surrounding the focus is the fringe of attention, which extracts information in a much more crude fashion. This fringe extends out to a specified area, and the cutoff is called the margin.

ZOOM-LENS MODEL

First introduced in 1986, this model inherits all the properties of the spotlight model, but it has the added property of changing in size. This size-change mechanism was inspired by the zoom lens one might find on a camera, and any change in size can be described by a trade-off in the efficiency of processing. The zoom-lens of attention can be described in terms of an inverse trade-off between the size of focus and the efficiency of processing. Because attentional resources are assumed to be fixed, the larger the focus is, the slower processing will be of that region of the visual scene, since this fixed resource will be distributed over a larger area.

COGNITIVE LOAD

Think of a computer with limited memory storage: you can only give it so many tasks before it is unable to process more. Brains work on a similar principle, called the cognitive load theory. "Cognitive load" refers to the total amount of mental effort being used in working memory. Attention requires working memory; therefore devoting attention to something increases cognitive load.

DETERMINING FACTORS THAT INFLUENCE THE FUNCTIONING OF ATTENTION

As we mentioned before, attention is not a one-way process. There are a number of factors for a stimulus to attract our attention. Only a stimulus based on these factors triggers our cognitive functions and can initiate cognitive processing. It is possible to examine these factors that attract our attention and maintain focus in two main groups:

1- Internal Factors

These determinants are personal because they depend on the individual's own cognitive resources and brain functions. Some of them can be listed as follows:

- Mental condition
- Needs
- Emotions
- Mindset
- Interests
- Motivation
- Physical state

2- External Factors

These determinants are usually based on the characteristics of the stimuli or come from our surroundings. Some of them can be listed as follows:

- Intensity
- Uniqueness
- Size
- Color
- Emotional Burden
- Contrast

THE FOUR TYPES OF ATTENTION

There are several types of attention and they are shown in the chart below:

SELECTIVE ATTENTION

When we focus our attention on anything, we actually choose to ignore many things. For example, imagine going to a bookstore. There is a specific book you want to buy and you are walking between the bookshelves to find that book.

Perhaps you are passing through hundreds of books without actually noticing any of them. On the other hand, your eyes actually see all of them and possibly record them deep into your mind, but you don't even realise it. This here is a great selective attention example.

Now that you have an understanding of the concept, let's go over the selective attention definition. If we need to define selective attention we can call it the process of focusing on a particular object in the environment for a certain period of time. Our attention is limited. So to use this limited resource, we need selective attention, which allows us to ignore details that are not important.

HOW DOES SELECTIVE ATTENTION WORK?

The term "cocktail party effect" is also used to describe selective attention psychology, especially in the Memory Selection Model. Because while we're at a party, there are many things that can distract us like music, light, and many other people talking. However, we can still focus on one conversation with a close friend. On the other hand, when our name is called among all the intense stimuli in this background, this will grab our attention.

So which of the following is the reason for human attention being selective? It is proven that the capacity of our brains to take care of everything around us is very limited, so it is impossible for us to pay attention to each of these sensory experiences. Therefore, while our brain focuses our attention on some important elements of our environment, it puts all other stimuli in the background.

THEORIES OF SELECTIVE ATTENTION

In cognitive psychology, there is more than one selective attention theory, which is focused on when our brains react and interact with stimulating information from outside.

This model was defined by **Donald Broadbent in 1958**. He used a filtering metaphor of information processing to describe attention. Broadbent suggested that our filtering of information occurs early on in the **perceptual process**. Physical characteristics like colours, loudness or direction of the stimulants processed before were used to select or reject a stimulus in later operations.

RESOURCE THEORIES OF SELECTIVE ATTENTION

More recent theories suggest that human attention can interact with limited stimuli and tends to explain how these resources are divided among competing stimuli. Hence, source theories appear to be a much more effective metaphor to explain the phenomenon of attention divided into complex stimuli and tasks.

VISUAL SELECTIVE ATTENTION

Perhaps we are exposed to millions of ads every day on the way to work or on the road. We don't even realize that we've seen many of these. But some, on the other hand, manage to attract our attention, especially if they address our current needs or taste. This shows that these advertisements have contacted with us as a stimulus by going through our selective perception.

EXAMPLES OF SELECTIVE ATTENTION COCKTAIL PARTY EFFECT

As we've mentioned before, although there are many stimuli around in crowded and noisy environments such as parties, our brain selects certain stimuli and focuses on them.

DIVIDED ATTENTION

We use divided attention while simultaneously paying attention to two or more tasks. This ability is also called Multitasking. Divided attention uses mental focus on a very large scale. Nonetheless, this does not allow the brain to fully focus on any task. Therefore, this type of attention does not last for long.

ALTERNATING ATTENTION

Alternating attention is the ability to change the focus of your attention and switch between different tasks. In this type of attention, mental flexibility is required so that one task does not limit the performance of others.

SUSTAINED ATTENTION

We often use sustained attention for tasks that take a long time or require intense focus. This type of attention allows one to consistently perform a certain mental activity. For example, when children study for an exam, they need to read and acquire their information in a textbook for several hours.

DIFFERENCES AMONG THE TYPES OF ATTENTION

SelectiveAttention
DIVIDED ATTENTION
Focusingon
TASKS

Unconsciously creating a mental focus on a single task or idea at once while ignoring others

	Increases the amount of attention being directed to a task or idea because of a single focus taking place	Minimizes the amount of attention being placed on any task or idea if there are multiple focuses going on at once
Amount of Attention		
Condition on Distractions & Switching tasks	Successful tuning out of distractions and switching tasks.	Unsuccessful tuning out of distractions and switching tasks
Cognitive Ability	Strengthens cognitive ability	Weakens cognitive ability the most
Amount of Possible Mistakes	Reduces the rate of making mistakes	Drives to make mistakes
Receiving Information	Allows to miss important information	Prevents missing important information
Side	UB	Page 10

Now that you have discovered how your mind works, you should be ready for the improvement! Trying MentalUP, prepared by academicians and scientists especially to boost cognitive functions,

WHAT IS PERCEPTION: APPROACHES TO THE STUDY OF PERCEPTION: GESTALT AND PHYSIOLOGICAL APPROACHES

Perceptual Organization: Gestalt, Figure and Ground, Law of Organization Perceptual Constancy: Size, Shape, and Color; Illusions

PERCEPTION OF FORM, DEPTH AND MOVEMENT ROLE OF MOTIVATION AND LEARNING IN PERCEPTION?

PERCEPTION: APPROACHES TO THE STUDY OF PERCEPTION: GESTALT AND PHYSIOLOGICAL APPROACHES PERCEPTUAL ORGANIZATION: GESTALT, FIGURE AND GROUND, LAW OF ORGANIZATION PERCEPTUAL CONSTANCY: SIZE, SHAPE, AND COLOR; ILLUSIONS PERCEPTION OF FORM, DEPTH AND MOVEMENT ROLE OF MOTIVATION AND LEARNING IN PERCEPTION

Perception: Approaches to the Study of Perception: Gestalt and physiological approaches

While our sensory receptors are constantly collecting information from the environment, it is ultimately how we interpret that information that affects how we interact with the world. **Perception** refers to the way sensory information is organized, interpreted, and consciously experienced. Perception involves both bottom-up and top-down processing. **Bottom-up processing** refers to the

fact that perceptions are built from sensory input. On the other hand, how we interpret those sensations is influenced by our available knowledge, our experiences, and our thoughts. This is called **top-down processing**.

One way to think of this concept is that sensation is a physical process, whereas perception is psychological. For example, upon walking into a kitchen and smelling the scent of baking cinnamon rolls, the sensation is the scent receptors detecting the odor of cinnamon, but the perception may be "Mmm, this smells like the bread Grandma used to bake when the family gathered for holidays." Although our perceptions are built from sensations, not all sensations result in perception. In fact, we often don't perceive stimuli that remain relatively constant over prolonged periods of time. This is known as **sensory adaptation**. Imagine entering a classroom with an old analog clock. Upon first entering the room, you can hear the ticking of the clock; as you begin to engage in conversation with classmates or listen to your professor greet the class, you are no longer aware of the ticking. The clock is still ticking, and that information is still affecting sensory receptors of the auditory system. The fact that you no longer perceive the sound demonstrates sensory adaptation and shows that while closely associated, sensation and perception are different.

In the beginning of the nineteenth century, two vastly developed areas in psychology, viz. perception and personality came nearer to each other. Numerous researches were carried out to study the relation between perception and personality. Perceptual characteristics have some sort of relation with individual's personality organization. Various journals have published findings of perception personality relationship. While going through this literature, one can find that the relation between perception and personality was studied from different angles. In other words, there are various approaches for studying the relation between these two important fields which have systematically, scientifically and experimentally developed in the last fifty years.

TOPOLOGICAL APPROACH :

As early as 1944, Thurstone described an extensive factorial exploration of various perceptual tasks in order to isolate underlying variables which could be used to account for individual differences. Since that time, there have been many attempts to relate various personality variables to differences in performance on perceptual tasks.

Innumerable perceptual tasks have been studied, and significant correlations have frequently been reported. For example, to mention only a few studies, Johansson⁸ in a study of motion perception and personality, constructed perceptual measures based on the fact that a perceived velocity of a single object moving in a visual field increases considerably when a second object moving with the same speed in the opposite direction is introduced. Ss with extremely slow 'velocity synthesis' (affected little by the A relativity effect introduced by the other object in the ally motion percept) were found to be artistic withdrawn, and to possess self-isolating attitudes. Schumer⁹ found marked differences in the quality of phi-phenomenon experiences reported by 100 college men. These differences were found to be significantly related to productivity of human movement in the Rorschach.

Extensive factor analysis which included 29 simple perceptual measures, such as visual acuity and simple closure, and more complex measures such as after-images, tachistoscopic performance and various automatic tests. The perceptual tasks, as well as a questionnaire which was used, held up well, that is, normal, neurotics and psychotics were differentiated. The author's hypothesis that normality was associated with 'integrative', 'wholistic', 'synthetic' attitudes was, according to them,

generally confirmed. Vandenberg reanalyzing some of Eysenck's results, generally confirmed his findings. It seems strange, however, that in these studies, insufficient attention was paid to the questions of set, attention and motivation which plagued workers in psychopathology.

THE WORK OF ERENKEL-BRUNSWIK

E.F. Brunswik's approach to perception is still another example of perceptual research which is almost entirely personality oriented and which throws light on personality factors as well as social and emotional variables. Brunswik became interested in perceptual variables in connection with the well-known research at the Institute of Child Welfare of the University of California which dealt with prejudiced and nonprejudiced attitudes and their motivational and cognitive correlates. Generally speaking, ethnocentric attitudes were found to be related to authoritarian personality structure. Brunswik soon discovered that many of her Ss were less able to tolerate 'emotional ambiguities' than others. She became interested, in whether or not this intolerance extended also to the more traditional field of perception. As a result of some of her explanations, she was able to offer rich evidence on the basis of interviews, clinical evaluations etc.

DIRECTIVE STATE APPROACH :

In the late 1940's, a 'new look' in perceptual theory emerged. The approach of the workers doing the early studies within this framework can be regarded as the single most important influence in the swing towards the belief that perception is essentially a personality oriented phenomenon. There were innumerable reports of research, some opposing, some defending the conclusions of the original classic and studies; bitterness, criticalness, and deep conviction pervaded the literature.

The 'new look' is a phrase borrowed from the publicity releases from liaison Dior in Paris, which described some startling changes in fashion. The great discovery of the 'new look' was that the perceiver also counts. In some ways, the introduction of the perceiver into the process of perception can be linked to the introduction of the observer into the measurement of velocity in the theory of relativity.

Einstein's great contribution emerges when he introduced the velocity of the observer or his frame of reference into the measurement of the velocity of an object. In the same way, the new look hoped to revolutionize » perception by introducing the characteristics of the perceiver, that is, his personality (drives, needs etc.). Unfortunately, the revolution in psychology did not go off as successfully as the revolution in physics, but fizzled more like the revolution in fashion.

DIRECTIVE STATE THEORY (APPROACH) - THE CONTROVERSY, RE-EVALUATION APPROACH :

McCinnies' study (²) which reported increased thresholds for recognition of emotionally toned, taboo words, was regarded as strongly supportive of perceptual defence, as a special mechanism. This specific study stimulated much controversy. Howes and Solomon (74,75) advanced the notion that McGinnies' results could be explained in other ways.

They noted that McGinnies' taboo words were much less familiar than the neutral words. They demonstrated that the more familiar a word was, the higher was its recognition thresholds; (perceptual defence) for Ss of the taboo words, although McGinnies defended his original interpretation. In general, the concept of perceptual defence began to lose status, even among directive state workers themselves. McGinnies' defence consisted of noting that increased recognition thresholds for neutral words were found when they followed immediately after taboo

words - constituting evidence for 'generalization' of the-avoidance (defensive) reaction. Furthermore, the analysis of pre-recognition responses suggested that for neutral words there was a greater resemblance to the stimulus words than there' was for the (122) taboo words. Postman, Bronson and Gropper strongly contested these explanations, suggesting that uncontrolled variations in familiarity of words could account for most of the perceptual defence effect. Solomon and Postman¹⁵⁵ had already reported a study which showed that recognition thresholds varied inversely with frequency of past usage.

Following are the additional points to be noted.

- Although many correlations between needs and perception have been demonstrated, there is a general failure to explain how and why these take place, that is, the mediation factors are not clear.
- In many studies which have purported to show the relationship of need perception, cognitive and judgmental elements are used as measures of perceptual response. These studies have failed to distinguish between perception and judgment. If motivational states influence perception per se, this should probably be demonstrated in experimental designs which control for factors such as attitude, set, memory, attention and familiarity.
- Most of the effects have been demonstrated with a marginal ambiguous stimulus. Are needs and motivations as powerful and influential in 'everyday' veridical perception as they are under marginal stimulus conditions?
- Perceptual modifications as a result of motivational states should be demonstrated through immediate perception, rather than in more complex, cognitive, and social situations.
- Effects demonstrating the relation between perception and need should probably be studied not only with other means, but with other experimental procedures and other perceptual events and situations.

HYPOTHESIS OR EXPECTANCY THEORY (APPROACH) ;

The directive state approach faces some methodological problems and from that a theory of hypothesis or expectancy was developed. This approach suggests that perceiving is always based on an expectancy or hypothesis on the part of the organism, /V' that is, he is turned to some aspects of his surroundings. (This view of perceiving is of course related to the approach of various set theories.) Bruner and Postman¹⁵⁶ are the original founders of the hypothesis or expectancy theory. Perception involves the input of information from the environment. Input is not specified in terms of stimulus energy, but rather in terms of its signal value, as cue or clue. The next process involves the checking or confirmation of the organism's hypothesis. If there is a confirmation, the hypothesis is strengthened and its arousal will be 'easier' in future when similar 'information' from the environment is received. If the hypothesis is not confirmed, the organism will introduce a new hypothesis, until one of them is confirmed.

Individual Differences as revealed in Perceptual Behaviour! The presence of individual differences in perceptual behaviour was recognised in psychology. Psychologists interested in the field of perception and sensory processes have characteristically taken considerable pains to devise experimental situations that are sufficiently simple and controlled to minimize these individual differences, in the interest of studying more accurately the phenomena with which they are primarily concerned. Any way, little attempt was made to study individual differences in perception systematically in relation to other aspects of behaviour or personality.

Thurstone's extensive factor analysis of perceptual task was predominantly oriented towards

isolating or detecting general factors of perception, but was not particularly concerned with personality correlates of these perceptual factors, There were no personality tests included in the battery that would have made such relationships detectable.

Early investigators used Rorschach ink-blot to relate systematically personality traits and perception. Early in the modern revival of interest in experimentation (84,82) on need in perception, Klein- has drawn attention to the presence of perceptual styles and perceptual modes of handling (82) threatening or emotional material. Klein and his associates have gone on to show the presence of a personality dimension labeled 'leveling1 (versus sharpening) which is revealed not only in perceptual recognition behaviour, but in perceptual judgmental tasks as well.

GESTALT PSYCHOLOGY

school of psychology founded in the 20th century that provided the foundation for the modern study of perception. Gestalt theory emphasizes that the whole of anything is greater than its parts. That is, the attributes of the whole are not deducible from analysis of the parts in isolation.

The word Gestalt is used in modern German to mean the way a thing has been "placed," or "put together." There is no exact equivalent in English. "Form" and "shape" are the usual translations; in psychology the word is often interpreted as "pattern" or "configuration."

Gestalt theory originated in Austria and Germany as a reaction against the associationist and structural schools' atomistic orientation (an approach which fragmented experience into distinct and unrelated elements). Gestalt studies made use instead of phenomenology. This method, with a tradition going back to Johann Wolfgang von Goethe, involves nothing more than the description of direct psychological experience, with no restrictions on what is permissible in the description. Gestalt psychology was in part an attempt to add a humanistic dimension to what was considered a sterile approach to the scientific study of mental life. Gestalt psychology further sought to encompass the qualities of form, meaning, and value that prevailing psychologists had either ignored or presumed to fall outside the boundaries of science.

The publication of Czech-born psychologist Max Wertheimer's "Experimentelle Studien über das Sehen von Bewegung" ("Experimental Studies of the Perception of Movement") in 1912 marks the founding of the Gestalt school. In it Wertheimer reported the result of a study on apparent movement conducted in Frankfurt am Main, Germany, with psychologists Wolfgang Köhler and Kurt Koffka. Together, these three formed the core of the Gestalt school for the next few decades. (By the mid-1930s all had become professors in the United States.)

PERCEPTUAL ORGANIZATION: GESTALT, FIGURE AND GROUND, LAW OF ORGANIZATION

Have you noticed how a series of flashing lights often appears to be moving, such as neon signs or strands of lights? According to Gestalt psychology, this apparent movement happens because our minds fill in missing information. This belief that the whole is greater than the sum of the individual parts led to the discovery of several different phenomena that occur during perception.¹

The law of closure is one example of a Gestalt law of perceptual organization. According to this principle, things in the environment often tend to be seen as part of a whole. In many cases, our minds will even fill in the missing information to create cohesive shapes.

A BRIEF HISTORY OF THE GESTALT LAWS

Gestalt psychology was founded by German thinkers Max Wertheimer, Wolfgang Kohler, and Kurt Koffka and focused on how people interpret the world.² The Gestalt perspective formed partially as a response to the structuralism of Wilhelm Wundt, who focused on breaking down mental events and experiences to the smallest elements.

Max Wertheimer noted that rapid sequences of perceptual events, such as rows of flashing lights, create the illusion of motion even when there is none. This is known as the phi phenomenon. Motion pictures are based on this principle, with a series of still images appearing in rapid succession to form a seamless visual experience.

According to Gestalt psychology, the whole is different from the sum of its parts. Based upon this belief, Gestalt psychologists developed a set of principles to explain perceptual organization, or how smaller objects are grouped to form larger ones.

These principles are often referred to as the "laws of perceptual organization." However, it is important to note that while Gestalt psychologists call these phenomena "laws," a more accurate term would be "principles of perceptual organization." These principles are much like heuristics, which are mental shortcuts for solving problems.

Follow the links below to find more information and examples of the different Gestalt laws of perceptual organization.

Gestalt theory [1] has provided perceptual science with a conceptual framework relating to brain mechanisms that determine the way we see the visual world. This is referred to as "Perceptual Organization" and has inspired researchers in Psychology, Neuroscience and Computational Design ever since. The major Gestalt principles, such as the principle of Prägnanz, and more importantly the Gestalt laws of perceptual organization, have been critically important to our understanding of visual information processing, how the brain detects order in what we see, and derives likely perceptual representations from statistically significant structural regularities. The perceptual integration of contrast information across co-linear space for the organization of objects in the 2D image plane into figure and ground convey the most elementary basis to our understanding of the visual world. Gestalt theory continues to generate powerful concepts and insights for perceptual science even today, where it is to be placed in the context of image-base decision making by human minds and machines.

However, in complex images, some visible stimulus fragments appear clearly aligned, others do not. Specific phenomenal conditions need to be satisfied to enable collinear interpolation in static 2D scenes, and the process of interpolation constrains the spreading of surfaces across unspecified regions in the image [45,46]. Also, not all of perceptual organization is hardwired [47,48], and the contribution of past experience and perceptual learning to early mechanisms of perceptual integration needs to be taken into account given that specific memory data about objects and their most likely spatial configuration may facilitate or interfere with, depending on conditions, ongoing visual processing of ambiguous image data. The question relative to recovery of 'veridical' object properties from image data may be seen as a byproduct of perceptual organization, but was not an issue raised by Gestalt theory. However, the laws of perceptual organization have generated a conceptual framework for addressing this problem space in a

bottom-up approach. The 'veridicality' of perceptual representations our brain may derive from visual stimuli raises deeper philosophical questions. Perceptual organization as such may be seen as resulting from pressure on the perceptual system to actively construct ordered representations of objects in depth in response to intrinsically ambiguous visual data. The biological role of perceptual organization, placed in the context of evolution, would be to ensure behavioral adaptation and success. Perceptual organization becomes mandatory as soon as the visual signals contained in an image or a scene reach our retina [49]. The major part of the necessary information processing then takes place in the visual brain, involving a whole chain of mechanisms well beyond the retina. Perceptual neuroscience has provided us with a diversified account for the many ways in which visual sensitivity to ordered structure and regularities expresses itself in behavior on the basis of cortical mechanisms. Multiple stages of neural processing transform fragmented signals into visual key representations of 3D scenes that can be used to control effective behavior. Since our survival depends on our ability to pick up order in the physical world, and since we conceive the physical world as an ordered one, our brain must be sensitive to structural regularities in the physical world. Neural interactions "beyond the classic receptive field" drive the visual processing of texture dissimilarities, boundary completion, surface filling-in, and figure-ground segregation in the brain genesis of "perceptual order".

FIGURE-GROUND PERCEPTION IN PSYCHOLOGY

Figure-ground perception refers to the tendency of the visual system to simplify a scene into the main object that we are looking at (the figure) and everything else that forms the background (or ground). The concept of figure-ground perception is often illustrated with the classic "faces or vases" illusion, also known as the Rubin vase. Depending on whether you see the black or the white as the figure, you may see either two faces in profile (meaning you perceive the dark color as the figure) or a vase in the center (meaning you see the white color as the figure).

A History of Figure-Ground Perception

The concept of figure-ground perception emerged out of the field of Gestalt psychology. According to the Gestalt approach, the whole is more (or different) than the sum of its parts.¹ The term Gestalt itself comes from the German word meaning "form" or "shape."

During the 1920s, a number of German psychologists including Max Wertheimer and Wolfgang Kohler began studying different principles of perception that govern how people make sense of an often disorderly world. Their work led to what is known as the Gestalt laws of perceptual organization.

The Gestalt theory of perception proposes that people make sense of the world around them by talking separate and distinct elements and combining them into a unified whole.²

For example, if you look at shapes drawn on a piece of paper, your mind will likely group the shapes in terms of things such as similarity or proximity. Objects that are similar to one another tend to be grouped together. Objects that are near each other also tend to be grouped together.

While the concept of figure-ground perception is an important principle in Gestalt psychology, it is usually not identified as one of the laws of perceptual organization.

People Distinguish Between Figure and Ground?

When looking at a visual scene, people tend to look for ways to differentiate between the figure and

the ground. Some ways that people accomplish this include:¹

- **Blurriness:** Objects in the foreground tend to be crisp and distinct while those in the background are blurry or hazy.
- **Contrast:** The high contrast between objects can lead to the perception of figure and ground. The Rubin vase is one example.
- **Size:** Images that appear to be larger will be perceived as closer and part of the figure while those that are smaller will seem further away and part of the background.
- **Separation:** An object isolated from everything else in a visual scene is more likely to be seen as a figure versus background.

Examples

The "faces or vases" illustration is one of the most frequent demonstrations of figure-ground. What you see when you look at the faces or vases illusion depends on whether you see the white as the figure or the black as the figure.

If you see the white as the figure, then you perceive a vase. If you see the black as the figure, then you see two faces in profile.

PERCEPTUAL CONSTANCY: SIZE, SHAPE, AND COLOR; ILLUSIONS

Perceptual constancy is perceiving objects as having constant shape, size, and color regardless of changes in perspective, distance, and lighting.

KEY POINTS

- Perceptual constancy refers to perceiving familiar objects as having standard shape, size, color, and location regardless of changes in the angle of perspective, distance, and lighting.
- Size constancy is when people's perception of a particular object's size does not change regardless of changes in distance from the object, even though distance affects the size of the object as it is projected onto the retina.
- Shape constancy is when people's perception of the shape of an object does not change regardless of changes to the object's orientation.
- Distance constancy refers to the relationship between apparent distance and physical distance: it can cause us to perceive things as closer or farther away than they actually are.
- Color constancy is a feature of the human color perception system that ensures that the color of an object is perceived as similar even under varying conditions.
- Auditory constancy is a phenomenon in music, allowing us to perceive the same instrument over differing pitches, volumes, and timbres, as well as in speech perception, when we perceive the same words regardless of who is speaking them.

VISUAL PERCEPTUAL CONSTANCIES

There are many common visual and perceptual constancies that we experience during the perception process.

Size Constancy

Within a certain range, people's perception of a particular object's size will not change, regardless of changes in distance or size change on the retina. The perception of the image is still based upon the actual size of the perceptual characteristics. The visual perception of size constancy has given rise to many optical illusions.

THE PONZO ILLUSION

This famous optical illusion uses size constancy to trick us into thinking the top yellow line is longer than the bottom; they are actually the exact same length.

SHAPE CONSTANCY

Regardless of changes to an object's orientation, the shape of the object as it is perceived is constant. Or, perhaps more accurately, the actual shape of the object is sensed by the eye as changing but then perceived by the brain as the same. This happens when we watch a door open: the actual image on our retinas is different each time the door swings in either direction, but we perceive it as being the same door made of the same shapes.

SHAPE CONSTANCY

This form of perceptual constancy allows us to perceive that the door is made of the same shapes despite different images being delivered to our retinæ.

DISTANCE CONSTANCY

This refers to the relationship between apparent distance and physical distance. An example of this illusion in daily life is the moon. When it is near the horizon, it is perceived as closer to Earth than when it is directly overhead.

COLOR CONSTANCY

This is a feature of the human color perception system that ensures that the color of an object remains similar under varying conditions. Consider the shade illusion: our perception of how colors are affected by bright light versus shade causes us to perceive the two squares as different colors. In fact, they are the same exact shade of gray.

AUDITORY PERCEPTUAL CONSTANCIES

Our eyes aren't the only sensory organs that "trick" us into perceptual constancy. Our ears do the job as well. In music, we can identify a guitar as a guitar throughout a song, even when its timbre, pitch, loudness, or environment change. In speech perception, vowels and consonants are perceived as constant even if they sound very different due to the speaker's age, sex, or dialect. For example, the word "apple" sounds very different when a two year-old boy and a 30 year-old woman say it, because their voices are at different frequencies and their mouths form the word differently...but we perceive the sounds to be the same. This is thanks to auditory perceptual constancy!

PERCEPTUAL ILLUSION

While the problem of perceptual illusion has not aroused quite the same degree of empirical or theoretical interest among neurophysiologists as among experimental psychologists there has nevertheless been a continuing concern with the neural correlates of illusory phenomena. Both Motokawa¹ and Burns and Pritchard² have recently attempted to establish the neural interactions associated with these distortions. However, the problem has proved extraordinarily intractable and the neural structures and processes associated with illusory effects remain quite obscure.

VISUAL SIZE CONSTANCY AND ILLUSION

As the observer recedes from an object (or vice versa) the retinal image of the latter diminishes but its apparent size is relatively constant. Therefore information for distance must be involved

in the maintenance of constant apparent size. That this is so was made clear in the classic experiments of Holway and Borings in which distance stimuli were progressively reduced. Since then data from three separate experiments⁹⁻¹¹ have shown that when distance stimuli are entirely eliminated an object's apparent size decreases as a linear function of observer-object-distance, i.e., apparent size follows the "law of the visual angle." "Cues" or stimuli for distance fall into five classes:

1. retinal disparity (or binocular parallax);
2. muscular stimuli (convergence and accommodation);
3. monocular parallax;
4. atmospheric stimuli (aerial perspective and the Tyndall effect); and
5. projected stimuli (perspective, texture, overlay, elevation in field, element and interspace size, and element and interspace frequency. Normally all or most of these stimuli for distance are present and visual size constancy is perfect. However, although size constancy falls off as distance stimuli are systematically reduced (e.g., when binocular parallax is eliminated by using one eye and monocular parallax by holding the head stationary⁸) some degree of constancy obtains, i.e., apparent size does not follow the law of the visual angle, as observer-object distance increases.

GEOMETRIC SIZE ILLUSIONS

The projected stimuli for distance, stimuli which derive essentially from the projection of a three-dimensional space on to the two-dimensional retinal surface, are more frequent and subtle than is usually realized. In addition to the well-known stimuli such as perspective, texture, overlay, and elevation, the size and frequency of elements other than the focal object and the size and frequency of interspaces between them vary with distance and provide information for distance.

The trees on the near side of a lake are bigger and fewer per unit visual angle than the smaller and more frequent trees on the far side, as indeed are the interspaces between them. Many geometric optical illusions involve such distance stimuli.

Of two objects one is usually located in the context of larger and less frequent elements or spaces consonant with nearness and the other in the context of smaller and more frequent elements corresponding to greater distance. The former object is judged smaller than the latter.

The Oppel-Kundt, Delboeuf, and Miiller-Lyer illusions are examples of size illusions in which the retinal image of an object, usually a linear simple figure, is invariant but projected stimuli for distance are varied. It should be noted, however, that as had been pointed out elsewhere¹⁵ the Miiller-Lyer illusion as it is classically shown represents two separate effects.

The "short" version with "inboard" elements is probably a different illusion than the "long" version with "outboard" elements. Evidence for this difference has been adduced by Erlebacher and Sekuler.

Visual orientation constancy and illusion When the observer's head is tilted laterally as posture is changed, the retinal orientation of the object's image relative to the normally vertical meridian of the eye changes. When the observer is recumbent this change is nearly 90 degrees.

However, under conditions of normal illumination and when only the object itself is visible in a dark room, its apparent tilt is relatively stable, a phenomena called visual orientation constancy.¹⁷ In normal illumination the bar remains perceptually invariant even for large lateral body tilts.

PERCEPTION OF FORM, DEPTH AND MOVEMENT FORM PERCEPTION

The **Gestalt Psychologists** studied extensively **form perception**, or the perception of objects, shapes and patterns. Gestalt principles may be broken down into two categories: **perceptual organization (grouping)** and **depth perception**.

GESTALT PRINCIPLES OF PERCEPTUAL ORGANIZATION

1. **How objects are grouped together** (Links to an external site.)
2. **CONTINUITY**
We tend to perceive figures or objects as belonging together if they appear to form a continuous pattern
3. **CLOSURE (CONNECTEDNESS)**
We perceive figures with gaps in them to be complete
4. **SIMILARITY**
We perceive figures which look alike as being grouped together
5. **PROXIMITY**
We perceive things close together as being in sets
6. **PRAGNANZ**
We perceive reality in the simplest way rather than inferring complexity

TAKE A MINUTE TO TAKE SOME NOTES: HOW ARE GESTALT GROUPING PRINCIPLES USED IN THE HUMAN CONDITION (ABOVE)

Monocular depth cues

7. **DEPTH CUES THAT CAN BE PERCEIVED BY ONLY ONE EYE**
8. **Interposition**
When one object partly blocks your view of another, you perceive the partially blocked object as farther away
9. **LINEAR PERSPECTIVE**
Parallel lines that are known to be the same distance apart appear to grow closer together, or converge, as they recede into the distance
10. **RELATIVE SIZE**
Larger objects are perceived as being closer to the viewer, and smaller objects as being farther away
11. **TEXTURE GRADIENT**
Near objects appear to have sharply defined textures, while similar objects appear progressively smoother and fuzzier as they recede into the distance
12. **ATMOSPHERIC PERSPECTIVE**
Objects in the distance have a bluish tint and appear more blurred than objects closer to the viewer

TAKE A MINUTE TO TAKE SOME NOTES: HOW ARE DEPTH CUES USED IN THE HUMAN CONDITION (ABOVE)

Gestalt principles help explain how we perceive distance, depth, organization and harmony on a 2 dimensional canvas.

Visual Perception in a nutshell – our visual perceptual system works to heighten differences and impose constancies to help us survive in the big, scary world, often causing disparities between what we see and the physical world.

Or, as Aristotle succinctly put it: “**our senses can be trusted but they can be easily fooled.**”

For example, in the image below both of the orange (middle) circles are exactly the same size. This one of many visual illusions, called the **Ebbinghaus Illusion**, which explore the effect of context on perception. Our visual system compares the circles and exaggerates the differences between them.

Our visual systems allow us to resolve fine detail, track a moving object, perceive depth, and see colors. Somehow, all these components of a visual scene merge so that we have one visual experience; for example, when we see a cat playing with a string, we interpret the scene-paws striking the string, details of claws and whiskers, the cat's paw in front of or behind the string, the colors of the cat-as a unitary visual event, even though we can attend to one or the other of these individually. How do our brains deal with such complex visual information? First, we will consider theories on the processing of motion, form, and color; then we will discuss binocular vision and perceiving depth.

One possibility for how we perceive a visual scene is that a defined series of neurons and their axons handles all information-motion, shape, and color-from a part of the visual field in a hierarchical manner. That is, a defined set of photoreceptors, other retinal cells, lateral geniculate cells, and cortical cells acts as a serial pathway for information from a block of the visual scene. This information arrives at a "master" cell or group of cells, in a visual association area of the cortex, which combines the current information with memories of previous experiences and make sense of it. In this model, pieces of the visual scene are transmitted like sections of a photograph to the brain.

However, evidence does not support this "photographic transmission" or serial pathway theory, but rather a parallel pathways model. This model states that three primary types of information-color, shape, and motion-are individually "pulled out" of the visual scene and sent through three parallel pathways, beginning right in the retina. In this view, one cone receptor receives light from a small area, for example, on the face of a moving calico cat, and signals from this cone go to several intermediate retinal cells and from these to ganglion cells.

Each of the ganglion cells responds to only one of the attributes- color, form, or motion-of the cat's face. The ganglion cells forward their signals to lateral geniculate nucleus (LGN) cells in the thalamus that respond uniquely to that one type of information (color, form, or motion), and so on to the primary visual cortex and further cortical areas. At higher areas, the scene is put back together again, as discussed below.

HIGHER CORTICAL AREAS REASSEMBLE THE VISUAL PUZZLE

Although parallel visual processing seems to fragment what we see, at higher levels the puzzle is reassembled. Further, the immediate visual scene is then interpreted in light of what we know from past visual experiences and what the wiring of our brains allows. While our visual experiences usually make sense to us, we are generally unaware of the cues we are using to interpret scenes until we are challenged with unconventional pictures such as illusions. For example, when we see a friend at some distance, we recognize the person and know that this is a normal adult (or child)

even though the image on the retina is much smaller than that of a person standing right next to us.

PERCEIVING DEPTH DEPENDS ON BOTH MONOCULAR AND BINOCULAR CUES

Along with information on motion, shape, and color, our brains receive input that indicates both depth, the perception that different objects are different distances from us, and the related concept of stereopsis, the solidity of objects. Studies show that people have two ways of judging depth or distance: using monocular (one-eyed) information, and using binocular (two-eyed) data. Monocular cues operate at distances of around 100 feet or greater, where the retinal images seen by both eyes are almost identical. These cues include:

1. Previous familiarity: If we know the range of sizes of people, cats, or trees, we can judge how far away they are.
2. Occlusion: If one object partly hides another, we know that the object in front is closer.
3. Perspective: Parallel lines such as the edges of a road, the intersections of walls and ceilings, and railroad tracks, appear to converge at a distance. The relative distances between objects in a scene with parallel lines are estimated by their positions along the converging lines.
4. Motion parallax: As we move our heads or bodies, nearby objects appear to move more quickly than distant objects; for example, telephone poles beside the road appear to pass by much more quickly when viewed from a moving car than do buildings or trees hundreds of feet back from the road.
5. Shadows and light: Patterns of light and dark can give an impression of depth, and bright colors tend to seem closer than dull colors.

Even though these monocular cues provide some depth vision so that the world does not look "flat" to us when we use just one eye, viewing a scene with two eyes-binocular vision-gives most people a more vivid sense of depth and of stereopsis. This is important when viewing objects closer than about 100 feet. Stereoscopic (three-dimensional) vision depends on the fact that the eyes are separated, on average, by about six centimeters, and thus get slightly different views of the same object. This means that when we fixate an object (place its image on the fovea), we can tell if another object is in front of or behind it by the difference in location of the second object's image on the two retinas. This difference in retinal position is called retinal disparity (Figure 3.) and is essential for stereoscopic vision. Experiments have shown that depth perception occurs at the level of the primary visual cortex or perhaps higher (association cortex), where individual neurons receiving input from the two retinas fire specifically when retinal disparity exists. Although scientists have located such neurons and know they are important for merging or fusing the images from the two eyes, they cannot yet fully explain how the brain accomplishes this.

WE FIRST SCAN A SCENE, AND THEN WE ATTEND TO INDIVIDUAL FEATURES

Finally, what we see depends on what we pay attention to. Sometimes the nature of the visual scene is such that one object or feature "pops out" at us because of distinctive boundaries. If the elements of a scene are not different enough from each other, no one part gets our attention over another. Vision scientists describe two sequential processes that direct our attention: the first is a rapid scanning system that tells us if a simple property is different in one or more parts of a scene. After the initial scan, we direct our attention to individual features of the scene-color, shape, orientation, size-and compare each part with others to detect subtle differences, or we compare each with a previously known version of the scene or object. Our ability to recognize any differences in what appear initially to be two identical objects, or sets of objects, depends on several factors, such as the degree of differences and previous familiarity with the objects.

One illustration of how we can miss differences in scenes when we first rapidly scan them is to make a copy of a photograph of a well-known person and to carefully alter one or two aspects of the picture: make the eyebrows heavier, change the mouth, add bags under the eyes. When the original and the altered copies are viewed side by side and upside down, the changes can be very difficult to identify. If these two pictures are viewed upright, the differences are immediately apparent. Another way to illustrate visual attention is to make a pattern of identical marks or simple objects, such as a sheet of paper with row upon row of X's, with one row containing one or two Z's. See how long it takes to identify the odd letters or objects. Students can devise tests like these in the experimental part of this unit.

ROLE OF MOTIVATION AND LEARNING IN PERCEPTION

In this research, we have examined the characteristics of university students' motivation and its connection with perceptions of the learning environment. Higher education teachers often find it challenging to decide how to organize their lectures and what instructional strategy they should use to be most effective. Therefore, we endeavoured to determine which characteristics of the learning environment best predict the motivational orientation of students and their satisfaction with the course.

The survey included 120 postgraduate students of the Faculty of Arts at the University of Ljubljana. In order to measure their motivation, we employed several scales of the Motivated Strategies for Learning Questionnaire (Pintrich et al., 1991). For the purpose of this research, we created a new questionnaire for their evaluation of the learning environment. The results revealed a high correlation between the intrinsic goal orientation, self-efficacy, and control beliefs. The most important factors of the learning environment that are connected with the formation of intrinsic goal-orientation and the enjoyment of education are the perception of the usefulness of the studied topics, a feeling of autonomy, and teacher support.

To an extent, these findings are supported by the findings of those authors who recommend using those methods of teaching that are in compliance with the student-centred understanding of teaching and learning.

In the previous two decades, the research conducted on achievement goals and achievement goal orientations has become highly prominent in the field of education (e.g. Ames, 1992; Dweck, 1986; Nicholls, 1984; Urdan, 2004). Moreover, certain meta-analyses have shown that this field has become predominant in the research of motivation (Austin & Vancouver, 1996). In psychology, goals are understood as the subject, activity or phenomenon at which our action is directed and with which we satisfy our need (Locke & Latham, 1990), whilst achievement goal orientations are the individuals' general approaches or schemes with which they undertake tasks and evaluate their achievements (Kaplan & Maehr, 2007; Pintrich & Schunk, 2002; Urdan, 2004).

Previous research has shown that, in order to understand the students' approach to studying, it is crucial to know the reasons for their dealing with a particular task and the goals they set for themselves in the process. In this context, the authors predominantly differentiate between mastery goals (i.e. intrinsic goals for which the emphasis is placed on the development of competence) and performance goals (i.e. extrinsic goals that place an emphasis on achievements and comparisons with others).

The positive effects of intrinsic goals have been demonstrated in research on a number of

occasions. They express themselves in higher diligence and assiduity in performing the task (Elliot & Church, 1997; Elliot & McGregor, 1999; Middleton & Midgley, 1997), increased self-efficacy (Pajares, 1997), and using advanced learning strategies (Archer, 1994).

The negative consequences of extrinsic goals are mostly reflected in the use of superficial learning strategies (Elliot et al., 1999), increased perception of stress (Smith, Sinclair, & Chapman, 2002), and self-handicapping (Urdu, 2004).

Achievement goal orientations A review of literature reveals that the research of achievement goals orientations derives predominantly from the work of Nicholls (1984) and Dweck (Dweck, 1985; Elliott & Dweck, 1988). They define motivation as achieving goals, which refer to increasing competences and assessing competence, whilst also defining goals as purposes, which explains why an individual undertakes a particular activity.

Nicholls (1984) was primarily researching how people define success in performance situations, and established that an individual can compare their achievement with their own progress, either self-reflectively (e.g. "I have learned something new", "I have performed better than the last time") or by applying some normative criterion (e.g. "I have performed better than others have").

Although Nicholls pointed out the importance of the situation in setting goals, he principally focused on establishing interpersonal differences in setting goals or motivational orientations. Being task-involved or being ego-involved expresses differences in aspirations in achieving these performance criteria.

These two orientations are supposed to be related to the perception of reasons for success, learning approaches, school evaluation and so on. Explicit differentiation between increasing competences and assessing competence is what led Dweck and Nicholls to define more precisely the two main types of performance goals: the goals that place an emphasis on management and the goals that place an emphasis on achievements.

THE LEARNING ENVIRONMENT

The term "learning environment" most frequently defines the social, psychological, or psychosocial environment in which learning or, as the case may be, teaching takes place (Cleveland & Fisher, 2014). For the most part, research has focused on the different elements of classroom context. Bronfenbrenner (1979) defines the classroom context as a microsystem, "a pattern of activities, roles and interpersonal relations experienced by the developing person in a given setting with particular physical and material characteristics" (Bronfenbrenner, 1979, p. 22), i.e. it contains elements that contribute to the understanding of the happenings in the classroom.

The belief that students and teachers should be researched as a whole prevailed, but researchers have shown a tendency to isolate individual variables instead of attempting to understand the complex integration of thinking, motivation, and feelings. The authors found that teaching never directly affects learning; on the contrary, it operates through intermediary factors that include perceptions of teaching, evaluation, the climate in the classroom, the content of the school subject, structure and similar.

Research has shown that the student's assessment of teaching characteristics or classroom learning environment influences a number of cognitive and affective results (Fraser, 1989; Fraser &

Fisher, 1982; Walberg, 1969). In their meta-analysis, Wang et al. (1990) established that the learning environment is one of the most important factors of learning, which affects both motivation for learning and learning achievements (Wang, Haertel, & Walberg, 1990).

PURPOSE OF THE PRESENT STUDY

To date, research on the influence of learning context on the formation of goal orientations and other factors of learning motivation has primarily focused on classroom settings, specifically on the characteristics of teaching tasks, assessment, and instructional strategies. We believe that goal orientation is among the most important factors of motivation.

The first and most important reason is that goal orientation directly influences many important aspects of student motivation. For example, it is more likely that students with intrinsic goal orientation will have higher self-efficacy, use more complex cognitive learning strategies, be meta-cognitively more active, and achieve better learning outcomes. Previous research shows that goals direct, or at least mediate, the entire process of self-regulation of learning, wherein the use of strategies is only one of the aspects.

METHOD

Participants and procedure The survey was conducted between November and December 2014, and included students who were enrolled in the first year of master studies at the Faculty of Arts at the University of Ljubljana. The sample consisted of 120 students (102 female, 17 male, 1 did not reveal his or her gender) who study in different programs, but are also participating in the common teaching module. This means that than 80% of all the students in this module were included in the research.

Students from foreign language (e.g. English and German Language and Literature), Slovenian, and Comparative Literature study programs prevailed with 76.7% of the whole sample. Females were also predominant in the sample (86%), which accurately reflects the actual participants in the study programs. Students respondents were 21 to 32 years old ($M = 23.3$; $SD = 1.75$). The age category 22 to 25 years represents more than 80% of all students in the research; only 9 students were older than 25 years.

MEASURES

Characteristics of motivation

In order to establish the connection between motivation and perception of the learning environment, we employed motivational scales from the Motivated Strategies for Learning Questionnaire (MSLQ) (Pintrich, Smith, Garcia, & McKeachie, 1991), which is based on a social-cognitive approach to motivation and learning characterized by stressing the interconnection of the cognitive and emotional components of learning.

In the first part of the questionnaire, 20 items was used from the MSLQ, specifically from the "Intrinsic goal-orientation" and "Extrinsic goal-orientation", "Self-efficacy" and "Control beliefs" scales. The respondents replied to the five-point Likert scale questionnaire with the following answer possibilities:

- 1 – Definitely not true of me,
- 2 – Mostly not true of me,
- 3 – Sometimes true and sometimes not true of me,
- 4 – Mostly true of me,

5 – Definitely true of me.

A five-point scale instead of the original seven-point scale was used to unify scales across the questionnaire.

EVALUATION OF THE LEARNING ENVIRONMENT

In addition to the scales from Motivated Strategies for Learning Questionnaire, we also used the Evaluation of the Learning Environment Questionnaire. The questionnaire, developed especially for this survey, is based on Moos' (1974) conceptualization of the learning environment, similar to many other questionnaires that were developed mainly for the use in primary or secondary education. However, the latter instruments are inappropriate for assessing the learning environment in higher education.

In this part of the questionnaire, 42 items were formed, representing the main dimensions of the learning environment: teacher support, student interaction, authentic learning, autonomy, and personal relevance. The respondents assessed their perceptions of learning environment on the course level by using the five-point Likert scale, which represented the frequency of individual "events" in lectures. The following answers were possible: 1 – Never, 2 – Seldom, 3 – Sometimes, 4 – Often, 5 – Always. The number of components was first evaluated with the principal component analysis, and the results of this analysis showed six appropriate dimensions.

CHARACTERISTICS OF THE LEARNING ENVIRONMENT WHICH PREDICT STUDENTS' MOTIVATION AND COURSE SATISFACTION

The theory and empirical findings show that perceptions of learning environment positively influence motivation and course satisfaction. Since correlation only tests for interdependence of the variables, we were also interested in describing the predictive value of learning environment. Correlation analysis (presented in Table 3) showed many moderate to high connections between motivation and evaluation of learning environment. Since learning environment variables were mostly correlated to intrinsic goal-orientation, we were interested to determine which of these variables is the most important in predicting intrinsic motivation.

The regression model is highly statistically significant and explains no less than 43% of the prediction of the dimensions of the learning environment of setting of intrinsic goals during learning ($F = 21.34$; $p < 0.001$). As can be seen in Table 4, two characteristics of the learning environment statistically significant affect the Intrinsic goal-orientation: perception of learning as authentic, connected to practical problems ($\beta = 0.43$) and perceived autonomy during their study ($\beta = 0.20$). These results show that the more that students see their learning as relevant and valuable for their practical experiences, the more intrinsically motivated they feel. Intrinsic orientation was also emphasized with the possibilities of taking control over learning. This means that the more a teacher (according to the opinion of students) encourages and allows the autonomous decisions of students and provides them with opportunities to make co-decisions, the more the students perceive the studied topics as useful and the greater the probability they will be intrinsically motivated during their study.

LEARNING ENVIRONMENT'S EFFECT ON MOTIVATION

The results have shown that students who set themselves intrinsic goals have a greater sense of control of their learning and a feeling of self-efficacy. Furthermore, our study revealed that students who perceive their learning environment as a place that fosters autonomy and self-direction and find their education to be useful and relevant are more intrinsically motivated.

The importance of collaborative learning and teacher support is also underscored. The results of the regression analysis reflect the findings from the correlation analysis and give even more significance to the real-life problems of the studied topics, and support in developing autonomy. The importance of the perceived authenticity of learning have also been proven in the correlation analysis. In this study, the interconnectedness of theoretical knowledge and practical application seems to be among the most important determinants of students' motivation for studying in higher education.

These findings are also supported by the research that has been done on goal-orientations. Ames and Archer (1988) found that goals set on the classroom level also affect the goals set by individual students. Students who believed that their learning environment was performance-oriented and encouraging with regards to good grades and competition set themselves extrinsic goals also with learning.

SIGNAL DETECTION THEORY: ASSUMPTIONS AND APPLICATIONS THE UTILITY OF SIGNAL DETECTION THEORY

Signal detection theory (SDT) is a technique that can be used to evaluate sensitivity in decision-making. Initially developed by radar researchers in the early 1950s (Peterson et al., 1954), the value of SDT was quickly recognized by cognitive scientists and adapted for application in human decision-making (Tanner and Swets, 1954; Green and Swets, 1966). The general premise of SDT is that decisions are made against a background of uncertainty, and the goal of the decision-maker is to tease out the decision signal from background noise. SDT can be applied to any binary decision-making situation where the response of the decision maker can be compared to the actual presence or absence of the target. The advantage of SDT as a measure of decision-making is that it provides a unitless measure of sensitivity, regardless of subject bias, that can be compared to other sensitivities over widely different situations.

INTRODUCTION AND SCOPE

Signal detection theory (SDT) sprouted from World War II research on radar into a probability-based theory in the early 1950s. It specifies the optimal observation and decision processes for detecting electronic signals against a background of random interference or noise. The engineering theory, culminating in the work of Wesley W. Peterson and Theodore G. Birdsall (Peterson et al. 1954), had foundations in mathematical developments for theories of statistical inference, beginning with those advanced by Jerzy Neyman and E. S. Pearson (1933).

SDT was taken into psychophysics, then a century-old branch of psychology, when the human observer's detection of weak signals, or discrimination between similar signals, was seen by psychologists as a problem of inference. In psychology, SDT is a model for a theory of how organisms make fine discriminations and it specifies model-based methods of data collection and analysis. Notably, through its analytical technique called the receiver operating characteristic (ROC), it separates sensory and decision factors and provides independent measures of them. SDT's approach is now used in many areas in which discrimination is studied in psychology, including cognitive as well as sensory processes.

SDT has been applied within a broad range of topics, including memory research (e.g., Banks, 1970), accuracy in radiology diagnostics (e.g., Obuchowski, 2003), and sustained attention in individuals with ADHD (e.g., Huang-Pollock et al., 2012). Further testament to the utility of SDT comes from the

fact that SDT is often discussed in introductory courses and textbooks (e.g., Wade et al., 2013; Lilienfeld et al., 2015). However even with the ubiquity of SDT as an evaluative tool, the mechanics of SDT are not typically discussed in undergraduate textbooks, suggesting that many students are not taught how to practically apply SDT in their university careers. One reason for this is that the procedure itself may appear deceptively complex. Most SDT sources discuss the theory with a rigor that is beyond the mathematical knowledge of most undergraduate students (Fisher, 2014). However, the application of basic SDT principles requires only rudimentary statistical knowledge and can easily be taught at an undergraduate level.

Another reason that SDT may not typically be covered in the undergraduate curriculum is a lack of compelling examples to demonstrate the utility of SDT. Oftentimes, examples are related to sensory performance and the practical application of SDT techniques to more high-level decision-making situations is not immediately apparent to students. For example, Goldstein (2014) and Wolfe et al. (2015), two common introductory textbooks for Sensation and Perception, discuss the theory of SDT in relation to hearing sensitivity in the context of noise.

However, there are more inherently interesting examples that can be used in the classroom to demonstrate the versatility of SDT to learners. Given the importance of active learning through concrete examples when learning inherently abstract statistical principles such as SDT (e.g., Watts, 1991; Garfield and Ben-Zvi, 2007) the onus is on educators to develop compelling examples to capture the interest of undergraduate students. Here, I argue that pseudoscientific “principles” can be used to demonstrate the power of SDT, given that many pseudoscientific results can be explained as the detection of patterns in meaningless noise.

THE MECHANICS OF SIGNAL DETECTION THEORY: A BRIEF OVERVIEW

The basic premise behind SDT is that both signal and noise are represented probabilistically within the decision-maker, and the extent to which those representations overlap can be estimated based on the decision-maker's responses and whether or not the signal is present. The decision-maker bases their decision relative to their criterion (β), where a signal will be reported present when the internal signal is stronger than β and absent when the internal signal is weaker than β . A hit represents the probability that the subject reports the signal present when it is and a false alarm represents the probability that the subject reports the signal present when it is absent.

Alternatively, a miss represents the probability that the subject reports the signal absent when it is present and a correct rejection represents the probability that the subject reports the signal absent when it is absent. All response probabilities are reflected as a part of the area underneath a normal curve. If the probability of each response type is therefore known, both the signal and the noise distributions can be estimated based on simple statistical principles.

Signal detection theory (SDT) is a framework for interpreting data from experiments in which accuracy is measured. In such experiments, two or more stimulus classes (signal and noise in a detection experiment, old and new items in a memory task) are sampled repeatedly, and an observer must select a response corresponding to the class actually presented. According to SDT, performance in such tasks is limited by observer sensitivity, which depends on the degree of overlap between the distributions of a decision variable produced by the stimulus classes.

Within this sensitivity constraint, observers can select from among a range of decision rules in order to satisfy performance goals. Experiments in which appropriate decision rules are manipulated

allow the construction of receiver operating characteristics (ROCs); these functions allow response bias and sensitivity to be distinguished, and can be used to evaluate assumptions about the presumed distributions.

Because it specifies the manner in which accuracy in different discrimination methods depends on sensitivity, SDT allows performance to be predicted across paradigms.

SUBLIMINAL PERCEPTION AND RELATED FACTORS, INFORMATION PROCESSING APPROACH

The meaning of the term subliminal perception has changed over the years, and some prefer to use perception without awareness as an alternative that avoids the sometimes contentious issue of limen (threshold). Generally speaking, "Subliminal perception occurs whenever stimuli presented below the threshold or limen for awareness are found to influence thoughts, feelings, or actions" (Merikle, 2000).

Because an influence on thoughts, feelings, or actions is relatively easy to measure experimentally, the difficult part about the field is evaluating awareness of a stimulus below the subject's threshold. Central to the issue is knowing when a subject is consciously aware of a stimulus, and how this can be reliably ascertained in experiments.

Traditionally, the subjects themselves report awareness. While other areas of psychology may disapprove of introspection as a source of data, in the field of subliminal perception this self-report of "awareness" seems to be unavoidable. The inevitable use of the self-report has also led to much debate over how these self-reports should be interpreted. The dissociation paradigm is the predominant experimental approach used in research on subliminal perception.

The term subliminal is derived from the terms sub (below) and limen (threshold), and it refers to perception so subtle it cannot reach conscious awareness. Most of the research on subliminal perception is done on visual subliminal perception. For instance, one can flash words or pictures so quickly on a computer screen (generally faster than 10-15 milliseconds) that perceivers have the feeling they do not see anything at all.

The first documented findings suggesting an effect that has come to be called "subliminal perception" (or perception without awareness) came from Pierce and Jastrow's (1884) work testing the human response to very similar, barely distinguishable stimuli. Pierce and Jastrow devised an experiment in which they each had to evaluate which of two pressures on skin was greater, along with a reported confidence level. The significant, and surprising, finding was that even when the subject indicated that they were guessing (zero confidence, implied 50% chance), they were actually correct about which pressure was greater more than 60% of the time. The subjects were consistently more accurate than chance, but were not aware of any difference between the two stimuli.

These findings were later confirmed by other researchers, stirring interest about stimuli that were beneath the threshold of conscious awareness. Popular interest in this field was spurred by the claims of a marketing researcher, James Vicary (Merikle, 2000).

In 1957, Vicary claimed that patrons at a movie theatre were exposed to advertising messages Eat Popcorn and Drink Coca-Cola flashed for 3 millisecond durations and repeated throughout a movie.

According to Vicary, patrons were not consciously aware of these hidden messages but responded favourably by significantly increasing their purchases of popcorn and drinks. There has not been any independent evidence to support the claims, and Vicary himself stated that the research was a fabrication (Merikle, 2000).

In other words, they are not consciously aware of the presented words or pictures. However, such visual stimuli are processed unconsciously, and they can have brief and subtle effects on our feeling and thinking. In addition, some research has been done on auditory subliminal perception. No reliable scientific evidence exists, however, for psychological effects of auditory subliminal perception.

The idea of an objective "threshold" is misleading. No objective threshold exists for conscious perception. Whether a briefly presented stimulus reaches conscious awareness depends on many different factors, including individual differences. The threshold is merely subjective.

Effects of subliminal perception are generally small and not easy to establish in controlled laboratory research. However, a few findings are reasonably well established, the most prominent being subliminal mere exposure; Repeated subliminal exposure to a stimulus (for example a picture) leads perceivers to like this picture a little more. Effects of mere exposure have even been obtained for stimuli that were perceived for only one millisecond. Perceivers can to some extent infer the valence (is something good or bad?) from subliminal stimuli. This is shown in research on the subliminal perception of short positive (e.g., sun) and negative (e.g., death) words.

Subliminal perception is controversial mainly because of the notion of subliminal persuasion: The strategy that may be used by marketers or politicians to deliberately influence customers or voters subliminally. In 1957, James Vicary claimed that he increased the sale of cola and popcorn in a New Jersey cinema by subliminally flashing "Drink Coke" and "Eat popcorn" during movies.

This however, turned out to be a myth. Perhaps because of the media attention subliminal perception and persuasion sometimes receives, most of the American population does believe subliminal persuasion to have far reaching consequences. However, although subliminal perception exists, research shows the effects to be minor and usually short-lived. There is no scientific reason to believe it can substantially change consumer behavior.

DEBATE OVER TERMS AND METHODOLOGY

The field of subliminal perception, or perception without awareness, has been marked by continual controversy. In recent years, experts within the field have been debating what qualifies as perception without awareness, and which forms of measurement are valid for experiments. Specifically, researchers question self reports from a subject in an experiment.

While Cheesman and Merikle (1984) have addressed the issue by classifying types of self reports, this controversy is far from resolved. Reingold and Toth (1996) describe one of the fundamental issues: . . . factors unrelated to awareness, such as demand characteristics and preconceived biases, may lead subjects to adopt a conservative response criterion and report null perceptual awareness even under conditions in which conscious perceptual information is available.

Response bias represents a threat not only to the validity of the subjective report measure of awareness, but also to its reliability. In particular, variability in response

criteria makes it difficult to compare reports of null subjective confidence across-subjects, or within-subjects across conditions.

JUST-NOTICEABLE DIFFERENCES (PIERCE AND JASTROW, 1884)

The first documented experiments by Pierce and Jastrow are not only interesting from a historical viewpoint, but also because the experiment alludes to subjective/objective thresholds discussed a century later (Kihlstrom et al., 1992). Pierce set out to research just-noticeable differences when the difference between stimuli was below a physiological threshold.

Two very similar pressures were exerted on the subject's hands, and the subject was forced to choose which of the two pressures was greater. Along with each choice, the subject rated their confidence on a scale of 0-3. Zero confidence denoted "absence of any preference for one answer over its opposite, so that it seemed nonsensical to answer at all" (Pierce and Jastrow, p. 77).

The results indicated a correlation between guesses and the actual proportion of pressures, even when the subjects were guessing (i.e. subliminal). Of the results at zero confidence, subjects guessed the greater pressure correctly in 62%, 70%, and 67% of trials (under different conditions). These results were consistently above 50%, the expected value for guessing.

Therefore, the subjects did perceive the stimuli even though they were not aware of them. A century later, Cheesman and Merikle (1984) defined a subjective versus objective criteria for the threshold which proves to have a major impact on the interpretation of this early experiment and all the others like it.

The subjective threshold would be the point at which subjects in the experiment could no longer report a difference in the stimuli (zero confidence). However, the objective threshold would take into account the successes of the guesses and would rule out subliminal perception in this case (Kihlstrom et al., 1992, p. 20). Visual Masking and Word Recognition (Marcel, 1983) Marcel's famous experiments during the 1970s on visual masking and word recognition exemplify an entire class of experiments on the priming effects of words.

Subjects were shown a masked prime word (or not) and then a target consisting of a string of letters that was sometimes semantically associated to the target. This string of letters sometimes formed a real word, but other times was nonsense. Under one condition, subjects were asked whether the prime word was present. In the other condition, subjects were asked whether the target string was a word.

Subliminal Mere Exposure (Kunst-Wilson and Zajonc, 1980) The "mere exposure" effect refers to the finding that merely being exposed to a stimulus such as an object enhances the subject's attitude toward the stimulus (Zajonc, 1968). This phenomenon is one of affect rather than cognition, and emotional liking or preference after repeated exposure is exhibited both in humans and in animals.

Kunst-Wilson and Zajonc (1980) performed experiments to determine whether the mere exposure effect occurs when the stimulus is presented subliminally, under degraded conditions where subjects indicate no recollection of the stimulus. Their findings are quite surprising, and have since been replicated in many similar experiments. In Kunst-Wilson and Zajonc's (1980) experiment, subjects were exposed to irregular octagons that could easily be discriminated under normal

circumstances.

In the exposure phase, the subjects first saw half of the octagons under “degraded” conditions (1 millisecond duration and poor illumination) which were determined to yield only chance level recognition. In other words, the subjects were later unable to recognize the stimuli they had seen during the exposure phase and so the stimuli were presented subliminally.

In the second phase, subjects had to make comparisons between two octagons under normal viewing conditions. One octagons had been subliminally presented to the subject during the exposure phase, and the other octagon was novel. Subjects were asked to both indicate which octagon they had seen before (recognition), and which octagon they liked better.

EXCLUSION PARADIGM (DEBNER AND JACOBY, 1994)

Recently, Debner and Jacoby (1994) have offered an “exclusion paradigm” which may be able to avoid the disputed aspects of the dissociation paradigm. The word completion experiment illustrates how the exclusion paradigm puts conscious and unconscious processes in conflict with each other. Subjects were first briefly flashed priming words for durations that ranged from subliminal to clearly perceptible. Subjects were then given word stems of partially completed words, and asked to complete the words.

However, subjects were instructed to not use the priming word in order to complete the partial word. If subjects were aware of the priming word, then they should avoid using it in the word completion task. However, if the subjects were not aware of the priming word but had nevertheless perceived it (subliminal perception), then the priming word might influence their word completion task.

Debner and Jacoby (1994) found that indeed, priming words presented for very brief durations – the subliminal stimuli – were much more likely to be used in completing words than the priming words shown for longer durations. This provides an interesting new experimental format in contrast to the usual dissociation, since the exclusion paradigm shows distinct results for consciously versus unconsciously perceived stimuli.

CONCLUSION

While there is much evidence supporting the existence of some kind of perception without awareness, controversy has underscored research in the field. Experts disagree on what should be called subliminal perception, and how such effects can be measured experimentally. Certainly, research has overwhelmingly demonstrated that people can perceive stimuli and act on them without reporting being consciously aware of the stimuli. However, whether or not this qualifies as true subliminal perception is a matter that is hotly debated. The dissociation paradigm, as well as the thresholds for conscious awareness, have been thoroughly criticized.

However, newer findings – those of Kunst-Wilson and Zajonc (1980), and more recently Debner and Jacoby (1994) – tread in new directions that avoid the classical pitfalls of subliminal experiments. While the controversy will no doubt continue, the overwhelming body of evidence from a diverse set of independent experiments is hard to ignore. It seems that subliminal perception, in some form, does exist and can be reliably measured.

INFORMATION PROCESSING

Basic Assumptions

The information processing approach is based on a number of assumptions, including:

1. information made available by the environment is processed by a series of processing systems (e.g. attention, perception, short-term memory);
2. these processing systems transform or alter the information in systematic ways;
3. the aim of research is to specify the processes and structures that underlie cognitive performance;
4. information processing in humans resembles that in computers.

The development of the computer in the 1950s and 1960s had an important influence on psychology and was, in part, responsible for the cognitive approach becoming the dominant approach in modern psychology (taking over from Behaviorism).

The computer gave cognitive psychologists a metaphor, or analogy, to which they could compare human mental processing. The use of the computer as a tool for thinking how the human mind handles information is known as the computer analogy.

Essentially, a computer codes (i.e., changes) information, stores information, uses information, and produces an output (retrieves info). The idea of information processing was adopted by cognitive psychologists as a model of how human thought works.

For example, the eye receives visual information and codes information into electric neural activity which is fed back to the brain where it is "stored" and "coded". This information can be used by other parts of the brain relating to mental activities such as memory, perception and attention. The output (i.e. behavior) might be, for example, to read what you can see on a printed page.

Hence the information processing approach characterizes thinking as the environment providing input of data, which is then transformed by our senses. The information can be stored, retrieved and transformed using "mental programs", with the results being behavioral responses.

Cognitive psychology has influenced and integrated with many other approaches and areas of study to produce, for example, social learning theory, cognitive neuropsychology and artificial intelligence (AI).

INFORMATION PROCESSING AND SELECTIVE ATTENTION

When we are selectively attending to one activity, we tend to ignore other stimulation, although our attention can be distracted by something else, like the telephone ringing or someone using our name.

Psychologists are interested in what makes us attend to one thing rather than another (selective attention); why we sometimes switch our attention to something that was previously unattended (e.g. Cocktail Party Syndrome), and how many things we can attend to at the same time (attentional capacity).

One way of conceptualizing attention is to think of humans as information processors who can only process a limited amount of information at a time without becoming overloaded.

Broadbent and others in the 1950s adopted a model of the brain as a limited capacity information processing system, through which external input is transmitted.

Information processing models consist of a series of stages, or boxes, which represent stages of processing. Arrows indicate the flow of information from one stage to the next.

- **Input** processes are concerned with the analysis of the stimuli.
- **Storage** processes cover everything that happens to stimuli internally in the brain and can include coding and manipulation of the stimuli.
- **Output** processes are responsible for preparing an appropriate response to a stimulus.

CRITICAL EVALUATION

A number of models of attention within the Information Processing framework have been proposed including:

Broadbent's Filter Model (1958), Treisman's Attenuation Model (1964) and Deutsch and Deutsch's Late Selection Model (1963).

However, there are a number of evaluative points to bear in mind when studying these models, and the information processing approach in general. These include:

1. The information processing models assume serial processing of stimulus inputs.
 - **Serial processing** effectively means one process has to be completed before the next starts.
 - **Parallel processing** assumes some or all processes involved in a cognitive task(s) occur at the same time.

There is evidence from dual-task experiments that parallel processing is possible. It is difficult to determine whether a particular task is processed in a serial or parallel fashion as it probably depends (a) on the processes required to solve a task, and (b) the amount of practice on a task. Parallel processing is probably more frequent when someone is highly skilled; for example a skilled typist thinks several letters ahead, a novice focuses on just 1 letter at a time.

2. The analogy between human cognition and computer functioning adopted by the information processing approach is limited.

Computers can be regarded as information processing systems insofar as they:

- combine information presented with stored information to provide solutions to a variety of problems, and
- most computers have a central processor of limited capacity and it is usually assumed that capacity limitations affect the human attentional system.

CULTURE AND PERCEPTION

How much alike, then, are two persons' sensations? Individuals raised in diverse cultures can actually sense the world differently. For example, Marshall Segall and his associates (Segall, Campbell, & Herskovits, 1966) found that people who live in forests or in rural areas can sense crooked and slanted lines more accurately than can people who live in urban areas.

This demonstrates that the rural and urban groups sense the same event differently as a result of their diverse cultural learnings. The term field dependence refers to the degree to which perception of an object is influenced by the background or environment in which it appears.

Some people are less likely than others to separate an object from its surrounding environment. When adults in Japan and the United States are shown an animated underwater scene in which one

large fish swims among small fish and other marine life, the Japanese describe the scene and comment more about the relationships among the objects in the scene.

The Americans were more likely to begin with a description of the big fish and make only half as many comments about the relationships among the objects. Not surprisingly, when showed a second scene with the same big fish, the Americans were more likely to recognize the big fish as the same one as in the first scene (Nisbett, 2003).

More recently, Kitayama, Duffy, Kawamura, and Larsen (2003) showed Japanese and European Americans a picture of a square with a line inside it (see Figure 3.1). They were then given an empty square of a different size and asked to either draw a line the same length as the one they had seen or a line of the same relative length to the one they had seen.

The European Americans were significantly more accurate in drawing the line of the same length while the Japanese were significantly more accurate in drawing the line of relative length. Differences in the environment and culture affected sensation.

The researchers then compared Americans who had been living in Japan and Japanese who had been living in the United States. The time for both was a few years. Given the same picture and task, the Americans who had been living in Japan were close to the Japanese in the original study while the Japanese who had been living in the United States were virtually the same as the native-born Americans.

While other explanations are possible, one strong suggestion is that even living for an extended time in new culture can modify sensation and cognitive processes.

PERCEIVING

Culture also has a great effect on the perception process (Tajfel, 1969; Triandis, 1964). Human perception is usually thought of as a three-step process of selection, organization, and interpretation. Each of these steps is affected by culture.

SELECTION

The first step in the perception process is selection. Within your physiological limitations, you are exposed to more stimuli than you could possibly manage. To use sight as an example, you may feel that you are aware of all stimuli on your retinas, but most of the data from the retinas are handled on a subconscious level by a variety of specialized systems. Parts of our brains produce output from the retinas that we cannot "see." No amount of introspection can make us aware of those processes. In an interesting study by Simons and Chabris (1999), participants viewed videotape of a basketball game. They were told to count the number of passes one team made. In the video, a woman dressed as a gorilla walks into the game, turns to face the camera, and beats her fists on her chest. Fifty percent of all people who watch the video don't see the gorilla. Mack and Rock (1998) argue that we don't consciously see any object unless we are paying direct, focused attention on that object.

PERCEPTUAL STYLES

Perceptual Style is the way you take in information through your five senses and make that information meaningful to you.

Your Perceptual Style acts as a filter between sensation and understanding. It is at the core of who

you are, and it impacts your values, your beliefs, your feelings, and your psychology.

Each of us has one of six unique Perceptual Styles that is innate. Our individual Perceptual Style is literally hard wired and has grown with us as we've aged and developed. The decisions you make, the actions you take, and the directions you choose, are all influenced by your Perceptual Style. This is because our Perceptual Style defines our reality.

We often assume we perceive and respond to the same objective reality and that there is one absolute "right." Research implies that not only is that untrue, but perception is actually a filter applied to objective reality, resulting in natural differences between people.

IT IS BECAUSE OF OUR VARYING PERCEPTUAL STYLES THAT WE ALL EXPERIENCE A DIFFERENT REALITY.

Here is a brief look at the six Perceptual Styles (presented in alphabetical order):

- **Activity:** People with the Activity Perceptual Style jump into life with both feet. They fully engage with the confidence that the details will sort themselves out. Direction, ideas, and pursuits emerge as the result of constant action and involvement with others and their surroundings. They engage until some new possibility or interest emerges to capture their attention. They cultivate extensive networks of friends and associates.
- **Adjustments:** People with the Adjustments Perceptual Style see the world as an objective reality that can be known if they take the time to gather complete information about its intricacies and complexities. They pursue the acquisition and application of knowledge as the basis for their life experience. They enjoy sharing their knowledge with others and gathering new information from research or conversation. They have a strong sense of diplomacy and project a calm certainty.
- **Flow:** People with the Flow Perceptual Style are instinctive advocates for the natural rhythms of life. They see the complex connectivity among seemingly unrelated people, environments, and situations. They intuitively integrate and harmonize their actions within a broadly defined community that provides them and others with a sense of belonging. They honor the continuity between past, present, and future.
- **Goals:** People with the Goals Perceptual Style stride through life focused on the accomplishment of specific results and well-defined objectives. They experience a sense of urgency and clarity of purpose. They believe achievement is primary and method or process secondary – the end justifies the means. They evaluate all activities based on possible contribution towards the achievement of the results they expect. They thrive on competition and believe that life is a constant competition with winners and losers.
- **Methods:** People with the Methods Perceptual Style approach life in a practical, matter-of-fact manner. They focus on how things need to be done. They believe that ordered processes, properly followed, will produce the desired results. They will discern the best processor technique to apply to any specific situation in order to produce reliable, repeatable outcomes. They impose order and they believe that everyone prefers to use well known and proven methods.
- **Vision:** People with the Vision Perceptual Style approach life as a singular experience, a journey toward the future. They face the realities of a situation with serious intent, an optimistic perspective that a solution will be found, and confidence that if one is not, there are always other alternatives to explore. They intuitively see new directions, and actions are taken or dropped opportunistically based on a sense of future possibilities and potential. They are highly

persuasive and easily convince others to follow their vision.

All six Perceptual Styles provide distinctly different experiences of the world. These differences result in a profound psychological and perceptual diversity that is the most important diversity there is because it helps explain the differences between people.

The six Perceptual Styles together describe the total range of perceptual reality. However, individually each Perceptual Style has access to only 1/6 of the total. Everyone has one Perceptual Style that is innate and unchanging. All six Perceptual Styles are evenly distributed in the world, and research confirms there is no difference in regards to culture, race, gender, or age. All six have unique strengths and challenges.

The Perceptual Styles displayed in the circle graph below show the relationships between them. Although all six are psychologically unique, each Perceptual Style shares some similarities with neighboring styles. Each is also attracted and repelled by its opposite style, and each finds the “one-off styles” somewhat puzzling.

NOW LET’S TAKE AN IN-DEPTH LOOK AT EACH PERCEPTUAL STYLE. ACTIVITY

Activity people develop an intense fascination with things that captivate their imagination, and they seek to share the excitement of their experience within their personal network. They are uninterested in things they find tedious or no longer hold their curiosity. They move rapidly from one experience to the next.

Activity people draw on knowledge and previous experience from seemingly unrelated sources to create original and distinctive approaches and results. They find more enjoyment in activities that include members of their personal network. Positive response from their personal network is what drives them, and to that end they pay attention to cultivating and sustaining that network.

Activity people bring energy and vitality to their activities and are often instrumental in getting things started. They believe that life should be fun as well as productive.

Activity people resist details and analysis. They get easily bored with repetitive and routine tasks. They are always ready to jump into something new, and they lose interest in activities that do not deliver attention-grabbing results. They quickly abandon anything they find boring and will wander off in search of other groups or activities that need energizing. Activity people function best in settings that require interaction and allow them to get involved, share insight, tell stories, provide help, and communicate their perspective to others.

ADJUSTMENTS

The actions of Adjustments people reflect their skills in collating, analyzing, and sharing what they know in useful ways. They create intricate systems for the storage and retrieval of their knowledge. The greatest satisfaction for Adjustments people comes from being an information resource for others rather than only applying the information themselves. As such, they are good at explaining and describing complex, detailed, or technical information. Their thoroughness, patience with repetitive tasks, and desire for perfection allow them to spot where information is missing or fuzzy. They edit the written work of others effectively. They actively polish and hone their knowledge, their systems, and their processes to increase elegance and accuracy. They are at their best when given the time to do things carefully and systematically.

Time pressure, competition, and a drive for the bottom-line all violate their view of the world. They believe these conditions lead to a false sense of urgency and impulsive actions that are based on incomplete understanding. They are intrigued by the exploration of ideas when the exploration is characterized by careful and comprehensive analysis that leads to slow evolutionary change.

Because Adjustments people see an effective environment as a complex system that usually requires only incremental alterations and additions rather than wholesale rework, they modify and correct existing processes judiciously.

FLOW

They create and sustain powerful but subtle relationships that form the glue of a community (family, friends, workgroup, social group, etc). They move smoothly and easily between daily events as their awareness emerges and recedes. They attend, in proper proportion, to events and people that require their attention, trusting that what needs to be done will be done.

Flow people facilitate the development of an environment that is comfortable, one that fosters and encourages people. When their environment shifts away from people centered community, they quietly influence its realignment, putting their personal needs aside if necessary to bring it back into harmony.

Flow people welcome new events that support their traditions and values. They use relational communities to gather and transmit informal information, after they have decided what to pass on and what to withhold. Their information sharing is so subtle that others experience the contribution Flow people make to create connection within the community but are often unaware of its source. Flow people provide aid and assistance to the members of a community by serving as a listening post, encouraging development and growth, and empathizing with those who are struggling. They are excellent administrators who interpret policy and procedure for their community.

It is important to them that the value of the community is accurately perceived by outsiders. They are keepers of community history and tradition and provide continuity between the past, present, and future. They use the history of the community to keep it grounded. The activities of Flow people are ultimately focused on support and maintenance of their community.

GOALS

Goals people distrust complexity, subtlety, and solutions that evolve slowly over time. They believe that if a problem needs a solution, there is no time like the present to solve it.

Goals people approach the world with intense energy and have a high level of endurance that allows them to push themselves well after others have given up. They take action with personal intensity and urgency, and they are always anxious to get on to the next task even before the current one is complete. What needs to be done next is obvious to them, so they do not understand why others around them do not see and act on it.

Goals people are very outcome oriented and as such prefer to focus on the accomplishment of goals on which they can see immediate progress. They have no loyalty to current processes or methods and will abandon them quickly if progress towards a solution is slowing down and stagnating. They

make high achievement demands on others but never more than they demand from themselves. Goals people approach life as a competition, and if they find no other worthy competitor they will compete with themselves to see how far they can push themselves in terms of speed, quantity, and endurance.

Goals people are decisive in crises and adept at bringing structure out of chaotic situations. Their single-minded focus allows them to see the fundamental issues in problem situations, to determine the most important task, and to prioritize the steps necessary to accomplish their goal.

METHODS

Methods people follow an ordered set of steps that when performed in a repeatable, logical sequence, inevitably end with the achievement of their objectives. They believe there is a correct method by which each problem, undertaking, or objective can be best handled. Discovering and applying this method is what drives them.

Once the desired result has been determined Methods people do not question it. Instead, they seek to find the steps that will produce the desired outcome with the most efficient use of time, money, and energy. They believe that failure of a solution to work is due to human error in the application of a correctly designed course of action Methods people analyze, manipulate, and apply facts. They use a rational application of facts to make decisions and solve problems, and they are confident that through this method they will arrive at the correct conclusion.

Methods people avoid becoming overly involved on a personal or emotional level and view both as distractions from the objectivity necessary to function effectively Methods people are matter-of-fact and consistent in high-pressure environments. Their ability to see structure and impose order allows them to help others function in the face of chaos and uncertainty.

VISION

Vision people face the realities of a situation with serious intent, an optimistic perspective that a solution will be found, and confidence that if one is not, there are always other alternatives to explore.

Vision people intuitively see new directions that others do not and make the most of this advantage by moving decisively. This ability to intuit new, useful directions and to take swift advantage of opportunities as they arise, gives them a strategic edge over others.

Vision people are unafraid of taking risks and accept that the possibility of high rewards carries with it an equal possibility of failure. However, they view failure as only a temporary setback. They love to play with, explore, and develop new ideas, and they examine all aspects, possible outcomes, and consequences without preconception or judgment Vision people change direction when progress towards achievement of their vision is slow or blocked, and as they move forward, they constantly tinker, experiment, and improvise with their actions in order to increase the likelihood of success. They are strongly committed to achieving their vision but are extremely flexible about the path taken to get there.

Vision people think non-linearly about problems, use their intuition, and try multiple possible solutions as they troubleshoot. When focused on an issue they work it to the exclusion of all else, often until they are exhausted.

Vision people are highly persuasive and easily convince others that the current topic is most important. They enlist others to join them with equal excitement and commitment.

Vision people see multiple successful scenarios, and they coordinate complex information and activities so that all efforts lead towards success.

UNDERSTANDING DIFFERENT PERCEPTUAL STYLES FOR LIFE SUCCESS

The differences between people are often seen as the result of a lack of knowledge, bias, or stubbornness when in truth they are simply a matter of unchangeable biology. Instead of taking a stance that there is a right and wrong way to view things, its best to acknowledge that variations in opinion are due to biologically based perceptual differences.

People literally perceive the world differently, and this differing perception leads to different conclusions about what is important, how things should be done, and what is the “truth” of any situation.

PATTERN RECOGNITION

Pattern recognition is the process of recognizing patterns by using machine learning algorithm. Pattern recognition can be defined as the classification of data based on knowledge already gained or on statistical information extracted from patterns and/or their representation. One of the important aspects of the pattern recognition is its application potential.

Examples: Speech recognition, speaker identification, multimedia document recognition (MDR), automatic medical diagnosis. In a typical pattern recognition application, the raw data is processed and converted into a form that is amenable for a machine to use. Pattern recognition involves classification and cluster of patterns.

- In classification, an appropriate class label is assigned to a pattern based on an abstraction that is generated using a set of training patterns or domain knowledge. Classification is used in supervised learning.
- Clustering generated a partition of the data which helps decision making, the specific decision making activity of interest to us. Clustering is used in an unsupervised learning.

Features may be represented as continuous, discrete or discrete binary variables. A feature is a function of one or more measurements, computed so that it quantifies some-significant characteristics of-the-object.

Example: consider our face then eyes, ears, nose etc are features of the face.

A set of features that are taken together, forms the **features vector**. **Example:** In the above example of face, if all the features (eyes, ears, nose etc) taken together then the sequence is feature vector([eyes, ears, nose]). Feature vector is the sequence of a features represented as a d-dimensional column vector. In case of speech, MFCC (Mel frequency Cepstral Coefficient) is the spectral features of the speech. Sequence of first 13 features forms a feature vector.

Pattern is everything around in this digital world. A pattern can either be seen physically or it can be observed mathematically by applying algorithms.

Example: The colours on the clothes, speech pattern etc. In computer science, a pattern is

represented using vector features values.

PATTERN RECOGNITION POSSESSES THE FOLLOWING FEATURES:

Pattern recognition system should recognise familiar pattern quickly and accurate

- Recognize and classify unfamiliar objects
- Accurately recognize shapes and objects from different angles
- Identify patterns and objects even when partly hidden
- Recognise patterns quickly with ease, and with automaticity.

TRAINING AND LEARNING IN PATTERN RECOGNITION LEARNING

is a phenomena through which a system gets trained and becomes adaptable to give result in an accurate manner. Learning is the most important phase as how well the system performs on the data provided to the system depends on which algorithms used on the data. Entire dataset is divided into two categories, one which is used in training the model i.e. Training set and the other that is used in testing the model after training, i.e. Testing set.

TRAINING

Training set is used to build a model. It consists of the set of images which are used to train the system. Training rules and algorithms used give relevant information on how to associate input data with output decision. The system is trained by applying these algorithms on the dataset, all the relevant information is extracted from the data and results are obtained. Generally, 80% of the data of the dataset is taken for training data.

TESTING

Testing data is used to test the system. It is the set of data which is used to verify whether the system is producing the correct output after being trained or not. Generally, 20% of the data of the dataset is used for testing. Testing data is used to measure the accuracy of the system. Example: a system which identifies which category a particular flower belongs to, is able to identify seven category of flowers correctly out of ten and rest others wrong, then the accuracy is 70 %

Real-time Examples and Explanations: A pattern is a physical object or an abstract notion. While talking about the classes of animals, a description of an animal would be a pattern. While talking about various types of balls, then a description of a ball is a pattern. In the case balls considered as pattern, the classes could be football, cricket ball, table tennis ball etc. Given a new pattern, the class of the pattern is to be determined. The choice of attributes and representation of patterns is a very important step in pattern classification. A good representation is one which makes use of discriminating attributes and also reduces the computational burden in pattern classification. An obvious representation of a pattern will be a **vector**.

Each element of the vector can represent one attribute of the pattern. The first element of the vector will contain the value of the first attribute for the pattern being considered. **Example:** While representing spherical objects, (25, 1) may be represented as an spherical object with 25 units of weight and 1 unit diameter. The class label can form a part of the vector. If spherical objects belong to class 1, the vector would be (25, 1, 1), where the first element represents the weight of the object, the second element, the diameter of the object and the third element represents the class of the object.

ADVANTAGES:

- Pattern recognition solves classification problems

- Pattern recognition solves the problem of fake bio metric detection.
- It is useful for cloth pattern recognition for visually impaired blind people.
- It helps in speaker diarization.
- We can recognise particular object from different angle.

DISADVANTAGES:

- Syntactic Pattern recognition approach is complex to implement and it is very slow process.
- Sometime to get better accuracy, larger dataset is required.
- It cannot explain why a particular object is recognized. Example: my face vs my friend's face.

APPLICATIONS:

- **Image processing, segmentation and analysis** Pattern recognition is used to give human recognition intelligence to machine which is required in image processing.
- **COMPUTER VISION**
Pattern recognition is used to extract meaningful features from given image/video samples and is used in computer vision for various applications like biological and biomedical imaging.
- **SEISMIC ANALYSIS**
Pattern recognition approach is used for the discovery, imaging and interpretation of temporal patterns in seismic array recordings. Statistical pattern recognition is implemented and used in different types of seismic analysis models.
- **Radar signal classification/analysis** Pattern recognition and Signal processing methods are used in various applications of radar signal classifications like AP mine detection and identification.
- **SPEECH RECOGNITION**
The greatest success in speech recognition has been obtained using pattern recognition paradigms. It is used in various algorithms of speech recognition which tries to avoid the problems of using a phoneme level of description and treats larger units such as words as pattern
- **Finger print identification** The fingerprint recognition technique is a dominant technology in the biometric market. A number of recognition methods have been used to perform fingerprint matching out of which pattern recognition approaches is widely used.

ECOLOGICAL THEORY OF PERCEPTION

During World War II, difficulties had been encountered in the flying of aircraft, particularly landing, and in the training of pilots (Gibson, 1979/1986). Tests had been given for depth perception using the static, frozen-in-time, stimulus presentations in two dimensions that are intended to assess perception of monocular and binocular depth cues. Tests might be for linear perspective or apparent size, or other monocular or binocular cues of depth. None of these tests, as it turned out, were able to predict how well a student pilot would perform. The traditional theory of depth perception was not working; it failed to apply where it should have. Gibson puzzled over this and came to realize that the traditional theory of depth perception was wrong.

Helmholtz (1866, in F. H. Allport, 1955) had struggled with the fact that visual perception of three dimensions was based upon a two-dimensional structure—the retina (the retina was flat and visual sensations without depth; Gibson, 1966). It was not possible, given that barrier, to perceive the three dimensions immediately. Helmholtz proposed that cues, which were signs of distance, provided

the basis for making unconscious inferences regarding size and distance (Hilgard, 1987).

Based upon his research Gibson (1979/1986) began to suspect that the traditional list of depth cues was simply not sufficient. Pondering the situation, he theorized that light provided information and that the changes taking place in the surrounding field of light (an array of reflections from objects) provided a form of information that the static displays did not. In the "optic array," an "optic flow pattern" was provided, by the changes in the structure of surrounding light, with information about one's position relative to environmental objects, and changes in that relation as one moves through time and space.

It was clear to Gibson that each approach—the classical approach and his—had a very different conception regarding the stimulus of perception.

Gibson was of the view that visual perception is due to the fact that ambient (surrounding) light conveys visual information that is accessible directly rather than being based upon visual cues (or clues) from the retina which have to be interpreted. Regarding his work prior to this realization, Gibson wrote: I failed to distinguish between stimulation proper and stimulus information, between what happens at passive receptors and what is available to active perceptual systems.

Traditional psychophysics is a laboratory discipline in which physical stimuli are applied to an observer. He is prodded with controlled and systematically varied bits of energy so as to discover how his experience varies correspondingly.

Gibson was working from the assumption that humans actively extract information from the environment that they use to guide their deliberations regarding how to act next. More than that, Gibson was putting forward an "ecological theory" that proposed that there was no absolute division between subject and object, perceiver and perceived (analogous to the assumed division into the stimulus–response sequences of discrete events).

There was a symbiosis between the perceptual apparatus and the environment that it evolved to perceive; perceiver and thing perceived were a system in which there was a constant, ongoing provision of feedback that served as information for the purposeful regulation of continuing activities.

Based upon his recent revelations, regarding the apparent, direct access to the real environment for perception, Gibson, between 1957 and 1961, worked toward developing a new theory of perception that would be consistent with direct realism – an ecological theory of perception (Lombardo, 1987). Up to that point, the person was seen as an individual who was isolated from the environment and that resulted in a metaphysical dichotomy (in the sense that two divisible and completely separate entities confronted and opposed each other). There was the subject (the individual who perceived the world) and the object (that which was perceived).

The result of such conceptual dichotomization was the puzzle of how an individual could perceive the world and to what degree phenomenological experience reflects the true nature of that objective world. This was the difficulty that Gibson would struggle with.

Psychology has long paid homage to evolutionary theory without appreciating the full implication of that theory for psychology. Darwin, on the other hand, was completely aware of the possible

contribution of his theory to psychology: In the distant future I see open fields for far more important researches. Psychology will be based on a new foundation, that of the necessary acquirement of each mental power and capacity by gradation. Light will be thrown on the origin of man and his history.

Mental powers evolved. They are not of a separate realm called mind nor are they apart from the world of nature; they are processes of nature, natural and material. Humans do not gaze upon the world from some distant, non-organic, supra-natural, plateau, separate from and independent of the remainder of living forms. We are of nature, bound to nature, its product. Mental processes are material processes (not of some separate substance called mind) that evolved because they were serviceable to continued existence in a material world.

Darwin's theory was that nature provides obstacles to survival, e.g., drought, famine, pestilence, changing climate, and so on, and that those individuals that were suited to these changed conditions would thrive and survive. This meant that variability of characteristics, within a species, would enhance chances for the survival of the species (not particular individuals). Those individuals, from the species as a whole, that could adapt to changing conditions would be the ones that would carry the species forward (in terms of evolutionary development).

The adapting individuals were selected by nature (a purely random, nonconscious, unintentional process) to continue to exist and have offspring. The adaptive characteristics were passed on to offspring through reproduction. By these means adaptive characteristics would be passed throughout the surviving members of the species and, through a very gradual process, could result in alterations of the species characteristics (morphologically or behaviorally). Darwin surmised that mental processes, upon appearing, were serviceable to continued existence and would therefore be favored by random selection processes.

GIBSON'S ECOLOGICAL THEORY IN HIS ECOLOGICAL THEORY,

Gibson (1966, 1979/1986) emphasizes the inseparable relation between perceptual systems and the physical world in which they evolved. The words animal and environment, from this perspective, imply each other; they cannot be disconnected. Reciprocity exists between animal and environment and, while they are distinguishable, they are mutually supportive (Lombardo, 1987). The ecological approach takes as its unit of study the animal in its environment, considered as an interactive system.

The relations within this system are reciprocal, with the reciprocity including a species evolving in an environment to which it becomes adapted, and an individual acting in its own niche, developing and learning. (Gibson and Pick, 2000, p. 14) In this reciprocal interaction the environment makes available resources, opportunities and information for action.

Actions themselves result in feedback (more information) that can lead to alterations in action. When chasing down prey, for instance, if it begins to pull away from one, speed can either be increased to compensate and overtake, or the chase broken off if that is not possible. In progressing toward some end, whatever that may be, one can continuously monitor one's progress and make adjustments as required.

Perception can be conceived of as an evolved adaptation to lawful relations between the environment and the energy arrays, e.g., optic, acoustic, chemical, that surround individuals and act

upon their sensory receptors. It is through the ecological reciprocity that Gibson transcends the barrier of the senses and discovers the basis for direct realism. This was not a position, however, that Gibson arrived at easily or without a great deal of thought and experimentation. In order to get to that point Gibson, who had originally been aligned with the constructionists, had to realize that problems existed for that perspective.

Gibson's discontent was not simply with the stimulus materials and experimental methods of the constructionists. With Helmholtz the place of commencement for the study of vision was at the retina, with sense impressions and receptor reactions. Up to 1950 this had been Gibson's focus, i.e., the retinal image as the stimulus for the eye (Gibson, 1966). With a change in perspective, he proposed that Newton had misled us when he suggested that light rays painted a picture of the visible object on the back of the eye. The retinal image, contrary to this, is not a picture. That is misleading since it suggests something looked at. The retinal image is a scintillation—a flash or a trace—because the retina jerks about (saccadic movement) and it has a gap called the blind spot where the optic nerve leaves the eye. It was a further misconception, argued Gibson, to think that a retinal sensory pattern can be impressed on the brain neural tissue since the neural pattern never existed in the retinal mosaic. A further reason for discounting the retina as the basis for visual perception was what was found through cross-species comparisons.

The visual organs of octopi, rabbits, bees, spiders, flies, and humans differ widely but all suggest visual perception of those conditions in the environment that are essential to surviving.

WHAT IS LEARNING PROCESS: FUNDAMENTAL THEORIES: THORNDIKE, GUTHRIE, HULL CLASSICAL CONDITIONING: PROCEDURE, PHENOMENA AND RELATED ISSUES INSTRUMENTAL LEARNING: PHENOMENA, PARADIGMS AND THEORETICAL ISSUES; REINFORCEMENT: BASIC VARIABLES AND SCHEDULES; BEHAVIOUR MODIFICATION AND ITS APPLICATIONS COGNITIVE APPROACHES IN LEARNING: LATENT LEARNING, OBSERVATIONAL LEARNING. VERBAL LEARNING AND DISCRIMINATION LEARNING

Recent trends in learning: Neurophysiology of learning?

LEARNING PROCESS: FUNDAMENTAL THEORIES: THORNDIKE, GUTHRIE, HULL CLASSICAL CONDITIONING: PROCEDURE, PHENOMENA AND RELATED ISSUES INSTRUMENTAL LEARNING: PHENOMENA, PARADIGMS AND THEORETICAL ISSUES; REINFORCEMENT: BASIC VARIABLES AND SCHEDULES; BEHAVIOUR MODIFICATION AND ITS APPLICATIONS COGNITIVE APPROACHES IN LEARNING: LATENT LEARNING, OBSERVATIONAL LEARNING. VERBAL LEARNING AND DISCRIMINATION LEARNING RECENT TRENDS IN LEARNING: NEUROPHYSIOLOGY OF LEARNING

Learning Process: Fundamental theories: Thorndike, Guthrie, Hull Classical

The underlying ability a teacher must have to orchestrate differentiated instruction day after day, hour after hour, by assessing his/her students and adjusting strategies and tactics moment by moment, requires sophisticated knowledge and skills.

To successfully use differentiated instruction, a teacher must first have a firm understanding of each of the cognitive components of the learning process, what they look like when they are working, and what the specific subcomponents of each look like when they are breaking down. Next, a teacher must develop a rich repertoire of strategies and tactics from which to pull the exact

strategy or tactic that will address a specific breakdown for a specific task, at the right moment. Using a great strategy at the wrong time, or mismatching a strategy with breakdown for which the strategy will yield no gains, will frustrate students and teachers alike when the strategy fails to produce the desired result.

There are six interactive components of the learning process: attention, memory, language, processing and organizing, graphomotor (writing) and higher order thinking. These processes interact not only with each other, but also with emotions, classroom climate, behavior, social skills, teachers and family.

In order to engage, motivate and teach all learners at optimal levels, teachers must understand the learning process in general, understand and respond to students' individual emotional and cognitive profiles and select instructional strategies and tactics that are effective for diverse learners.

ATTENTION

Paying attention is the first step in learning anything. It is easy for most of us to pay attention to things that are interesting or exciting to us. It is difficult for most of us to pay attention to things that are not. When something is not interesting to us, it is easier to become distracted, to move to a more stimulating topic or activity, or to tune out.

The teacher's job is to construct lessons that connect to the learner. Relating what is to be taught to the students' lives can accomplish this. Relate Romeo and Juliet, for example, to the realities in our communities of prejudice, unfounded hatred and gang wars. Or relate today's discrimination to The Diary of Anne Frank, and hold class discussions of discrimination that students have personally experienced or witnessed.

Physical movement can help to "wake up" a mind. When a student shows signs of inattentiveness and/or restlessness, teachers can provide the student with opportunities to move around. Many students with attention challenges actually need to move in order to remain alert. It is wise to find acceptable, non-destructive ways for these students to be active. Responsibilities such as erasing the board, taking a message to the office, and collecting papers can offer appropriate outlets for activity.

MEMORY

Memory is the complex process that uses three systems to help a person receive, use, store, and retrieve information. The three memory systems are (1) short-term memory (e.g., remembering a phone number you got from information just long enough to dial it), (2) working memory (e.g., keeping the necessary information "files" out on the mind's "desktop" while performing a task such as writing a paragraph or working a long division problem), and (3) long-term memory (a mind's ever expanding file cabinet for important information we want to retrieve over time).

Children in school have to remember much more information every day than most adults do. Adults generally have more specialized days – mechanics use and remember mechanical information, dentists use and remember information about dentistry, and so on. On the other hand, school expects that children become experts in several subjects – e.g., math, language, science, social studies, a foreign language, the arts.

It is important to remember that when a student understands something, it does not guarantee that he will remember it. For example, a person may understand a joke that he heard at a party on Saturday night, but he may have trouble remembering it when he tries to tell it to his friends on Monday.

In order to enhance the likelihood that all students will elaborate on new information, teachers should activate their prior knowledge and make new information meaningful to them. For example, a teacher may ask second graders how to divide a pan of brownies evenly among the 20 students in the class, and then connect their solution to the concept of equivalent fractions. Relating how algebraic equations need to be equal or balanced on both sides to the benefits of dividing candy or cookies evenly between friends also connects to prior knowledge.

Students who have difficulty with both short-term and working memory may need directions repeated to them. Giving directions both orally and in written form, and giving examples of what is expected will help all students. All students will benefit from self-testing. Students should be asked to identify the important information, formulate test questions and then answer them. This tactic is also effective in cooperative learning groups and has been shown by evidence-based research to increase reading comprehension (NICHD, 2000).

LANGUAGE

Language is the primary means by which we give and receive information in school. The two language processing systems are expressive and receptive. We use expressive language when we speak and write, and we use receptive language when we read and listen. Students with good language processing skills usually do well in school. Problems with language, on the other hand, can affect a student's ability to communicate effectively, understand and store verbal and written information, understand what others say, and maintain relationships with others.

Most students, especially those with weaknesses in written language, will benefit from using a staging procedure for both expository and creative writing. With this procedure, students first generate ideas. Next they may organize their ideas. Third, they may look at sentence structure. Then they examine their spelling. Finally, they attend to mechanical and grammatical rules. It is also helpful for students to list their most frequently occurring errors in a notebook and refer to this list when self-correcting.

All students will benefit from systematic, cumulative, and explicit teaching of reading and writing. Students who have receptive language challenges such as a slower processing speed must use a lot of mental energy to listen, and, therefore, may tire easily. Consequently, short, highly structured lectures or group discussion times should be balanced with frequent breaks or quiet periods. Oral instructions may also need to be repeated and/or provided in written form.

Cooperative Strategic Reading (Klinger, Vaughan, Hughes, Schumm, and Elbaum as referenced in Marzola 2006) is another way to engage students in reading and at the same time increase oral language skills. This tactic is ideal for promoting intellectual discussion and improving reading comprehension of expository text in mixed-level classrooms across disciplines. Using this tactic, students are placed into cooperative learning groups of four to six students of mixed abilities. The students work together to accomplish four main tasks: (1) preview (skim over the material, determine what they know and what they want to learn), (2) identify clicks and clunks (clicks = we get it; clunks = we don't understand this concept, idea or word), (3) get the gist (main idea) and (4)

wrap up (summarize important ideas and generate questions (think of questions the teacher might ask on a test). Each student in the group is assigned a role such as the leader/involver/taskmaster, the clunk expert, the gist expert, and the timekeeper/pacer (positive interdependence). Each student should be prepared to report the onthe group's conclusions (individual accountability).

Broadening the way we communicate information in the classroom can connect all students more to the topic at hand, and especially students with language challenges. Using visual communication such as pictures and videos to reinforce verbal communication is helpful to all students, and especially to students with receptive language challenges. Challenge students to invent ways to communicate with pictures and other visuals, drama, sculpture, dance and music, and watch memory of key concepts increase and classrooms come alive.

ORGANIZATION

We process and organize information in two main ways: simultaneous (spatial) and successive (sequential). Simultaneous processing is the process we use to order or organize information in space. Having a good sense of direction and being able to "see" how puzzle pieces fit together are two examples of simultaneous processing. Successive processing is what we use to order or organize information in time and sequence. Concepts of time, dates, and order – yesterday, today, and tomorrow, months of the year, mathematical procedures such as division and multiplication, word order in sentences, and sentence order in paragraphs are examples of sequential processing. Students who are good at successive organization usually have little or no trouble with time management and usually find it easy to organize an essay in a sequence that is logical.

Students who have trouble with understanding spatial or geographical problems may need successive verbal explanations given to them. They may benefit from writing written explanations and descriptions of the information contained in charts, graphs or diagrams. Teachers should model this process for all students.

Students who have trouble remembering sequences of information but who are strong in simultaneous processing should benefit from graphic organizers, and making diagrams or flow charts of sequential information such as events in history rather than the standard timeline. They may benefit from software programs such as Inspiration that organize concepts and information into visual maps.

Practicing cooperative learning allows each student's processing and organizing strengths to be utilized to the benefit of the group. For example, those who are strong in simultaneous organization may create the group's chart, visual, or map, and those strong in successive organization may be the task step organizers, the taskmasters, timekeepers and pace setters.

GRAPHOMOTOR

The writing process requires neural, visual, and muscular coordination to produce written work. It is not an act of will but rather an act of coordination among those functions. Often the student who seems unmotivated to complete written work is the student whose writing coordination is klutzy. We have long accepted that students may fall on a continuum from very athletic to clumsy when it comes to sports, but we have not known until recently that some students are writing "athletes" while others writing klutzes. Just as practice, practice, practice will not make a football all-star out of an absolute klutz, practice and acts of will not make a writing all-star out of someone whose neurological wiring does not allow her to be a high performing graphomotor athlete.

Students with handwriting difficulties may benefit from the opportunity to provide oral answers to exercises, quizzes, and tests. Having computers in place for all children helps level the playing field for the graphomotor klutz. Parents and teachers should be aware, however, that many children with graphomotor challenges may also have difficulty with the quick muscular coordination required by the keyboard.

Higher Order Thinking Higher order thinking (HOT) is more than memorizing facts or relating information in exactly the same words as the teacher or book expresses it. Higher order thinking requires that we do something with the facts. We must understand and manipulate the information. HOT includes concept formation; concept connection; problem solving; grasping the “big picture”; visualizing; creativity; questioning; inferring; creative, analytical and practical thinking; and metacognition. Metacognition is thinking about thinking, knowing about knowing, and knowing how you think, process information, and learn.

All students will benefit from advance organizers that relate the big picture and the main concepts to be covered. Also, all students should be explicitly taught how to build concept maps (graphic organizers that connect all components of a concept, and may also connect one concept to another concept).

Give choices for projects and exams that include analytical, practical and creative thinking options. For example, an analytical choice might be to compare and contrast the events of the Holocaust to events in Rwanda. A practical choice might be to show how we can apply the lessons learned from the Holocaust to how we treat one another in our schools. A creative choice might be to write a play about tolerance, create a dance that communicates the emotions of the Holocaust, or write a poem or paint a picture that tells a story about how you feel about the conditions in Darfur.

Providing ample opportunities in the classroom for self-evaluation and self-reflection helps students develop self-understanding. Self-Evaluation... Helping Students Get Better At It! By Carol Rolheiser is listed in the reference section following this article and is a helpful resource for teachers who want to incorporate more student self-evaluation in their classrooms.

A student with metacognition can answer the question, “How am I smart?” The first part of metacognition is thinking about thinking. If a person has metacognition, he understands the way he thinks, and he understands his strengths and challenges in specific skill areas, subjects and activities.

A person with metacognition also monitors and regulates how he learns. He can take a task and decide how best to accomplish it by using his strategies and skills effectively. He knows how he would best learn a new math procedure and which strategies he would use to understand and remember a science concept. He understands the best way for him to organize an essay – whether he would be more successful by using an outline, a graphic organizer or a mind map. He has mental self-management.

Psychologist Robert Sternberg lists six components of mental self-management:

- Know your strengths and weaknesses.
- Capitalize on your strengths and compensate for your weaknesses.-

- Defy--negative-expectations.
- Believe-in-yourself-(self-efficacy).
- Seek--out role-models.
- Seek out an environment where you can make a difference.

Ultimately, this is where we hope students who attend our schools will be upon graduation. As adults, we should model our own metacognition, talk about metacognition, and give meaningful examples of metacognition often and well.

Teaching students about the six components of the learning process – attention, memory, language, processing and organizing, graphomotor (writing) and higher order thinking, then, demystifies learning and provides an opportunity to increase their metacognition. It also enhances their sense of self-worth. A student who understands that she may need to use a particular strategy to help her working memory function better or that taking frequent breaks will help her stay more focused on her homework assignments is much better off than thinking that she is stupid or lazy.

EMOTIONS

Emotions control the on-off switch to learning. When we are relaxed and calm, our learning processes have a green light. When we are uptight, anxious, or afraid, our learning processes have a red light. In the classroom, tension slams the steel door of the mind shut. Creating a non-threatening classroom environment or climate where mistakes are welcomed as learning opportunities reduces tension, opens the mind and increases the opportunity for learning.

The more teachers know about how learning takes place – how information is processed, manipulated and created, the more we will know about what it looks like when it's working and what it looks like when it starts to break down. Then, rather than thinking a student isn't motivated, teachers will look to see if it is attention, memory, language, organizing, graphomotor or higher order thinking that needs an intervention.

MOTIVATION

It is every teacher's job to motivate every student. Learning more about the brain and the development of the mind, studying new information on learning, making learning meaningful and learning about learning, watching the learning process, monitoring closely for breakdowns, and celebrating the successes of every student – these are our challenges as we create schools that honor diversity – the schools all children deserve.

FUNDAMENTAL THEORIES: THORNDIKE

Edward Thorndike (1898) is famous in psychology for his work on learning theory that led to the development of operant conditioning within Behaviorism.

Whereas classical conditioning depends on developing associations between events, operant conditioning involves learning from the consequences of our behavior.

Skinner wasn't the first psychologist to study learning by consequences. Indeed, Skinner's theory of operant conditioning is built on the ideas of Edward Thorndike.

Thorndike studied learning in animals (usually cats). He devised a classic experiment in which he used a puzzle box (see fig. 1) to empirically test the laws of learning.

He placed a cat in the puzzle box, which was encourage to escape to reach a scrap of fish placed outside. Thorndike would put a cat into the box and time how long it took to escape. The cats experimented with different ways to escape the puzzle box and reach the fish.

Eventually they would stumble upon the lever which opened the cage. When it had escaped it was put in again, and once more the time it took to escape was noted. In successive trials the cats would learn that pressing the lever would have favorable consequences and they would adopt this behavior, becoming increasingly quick at pressing the lever.

Edward Thorndike put forward a “**Law of effect**” which stated that any behavior that is followed by pleasant consequences is likely to be repeated, and any behavior followed by unpleasant consequences is likely to be stopped.

CRITICAL EVALUATION

Thorndike (1905) introduced the concept of reinforcement and was the first to apply psychological principles to the area of learning.

His research led to many theories and laws of learning, such as operant conditioning. Skinner (1938), like Thorndike, put animals in boxes and observed them to see what they were able to learn. The learning theories of Thorndike and Pavlov were later synthesized by Hull (1935). Thorndike's research drove comparative psychology for fifty years, and influenced countless psychologists over that period of time, and even still today.

The theory suggests that transfer of learning depends upon the presence of identical elements in the original and new learningsituations; i.e., transfer is always specific, never general. In later versions of the theory, the concept of “belongingness” was introduced; connections are more readily established if the person perceives that stimuli or responses go together (c.f. Gestalt principles). Another concept introduced was “polarity” which specifies that connections occur more easily in the direction in which they were originally formed than the opposite. Thorndike also introduced the “spread of effect” idea, i.e., rewards affect not only the connection that produced them but temporally adjacent connections as well.

APPLICATION

Connectionism was meant to be a general theory of learning for animals and humans. Thorndike was especially interested in the application of his theory to education including mathematics (Thorndike, 1922), spelling and reading (Thorndike, 1921), measurement of intelligence (Thorndike et al., 1927) and adultlearning (Thorndike at al., 1928).

EXAMPLE

The classic example of Thorndike’s S-R theory was a cat learning toescape from a “puzzle box” by pressing a lever inside the box. After much trial and error behavior, the cat learns to associate pressing the lever (S) with opening the door (R). This S-R connection is established because it results in a satisfying state of affairs (escape from the box). The law of exercise specifies that the connection wasestablished because the S-R pairing occurred many times (the law of effect) and was rewarded (law of effect) as well as forming a single sequence (law of readiness).

FUNDAMENTAL THEORIES: GUTHRIE

Guthrie attempted to explain learning through **association** of stimuli with responses. Learning, in terms of behavior is a function of the environment. According to Guthrie, learning is associating a particular stimulus with a particular response. This association, however, will only occur if **stimuli and responses occur soon enough** one after another (**the contiguity law**). The association is established on the **first experienced instance of the stimulus (one trial learning)**. Repetitions or **reinforcements** in terms of reward or punishment do not influence the strength of this connection. Still, every stimulus is a bit different, which results in many trials in order to form a general response. This was according to Guthrie the only type of learning identifying him not as reinforcement theorist, but contiguity theorist.

More complex behaviors are composed of a **series of movements** (habits where each movement is a small stimulus-response combination. These movements or are actually what is being learned in each one trial learning rather than behaviors. Learning a number of moves forms an act (incremental learning). Unsuccessful acts remain not learned because they are replaced by later successfully learned acts.

Other researchers like John Watson studied whole acts just because it was easier, but movements are, according to Guthrie what should actually be studied.

Forgetting occurs not due to time passage, but due to interference. As time passes, stimulus can become associated with new responses. Three different methods can help in forgetting an undesirable old habit and help replacing it

- **Fatigue method** - using numerous repetitions, an animal becomes so fatigued that it is unable to reproduce the old response, and introduces a new response (or simply doesn't react).
- **Threshold method** - first, a very mild version of the stimulus below the threshold level is introduced. Its intensity is then slowly increased until the full stimulus can be tolerated without causing the undesirable response
- **Incompatible stimuli method** - the response is "unlearned" by placing the animal in a situation where it cannot exhibit the undesirable response.

Although it was intended to be a general theory of learning, Guthrie's theory was tested mostly on animals.

WHAT IS THE PRACTICAL MEANING OF CONTIGUITY THEORY AND ONE TRIAL LEARNING?

In Guthrie's own words, "we learn only what we ourselves do".

Learning must be active, but as such must involve both **teacher's and students' activity** in order to relate stimulus with a response within a time limit. Guthrie also applied his ideas to treatment of **personality disorders**.

CRITICISMS

Guthrie's theory was first preferred, due to its **simplicity**, but later criticized for the same reason. Its simplicity was later turned into **incompleteness**. It was also based on too little experimental data and criticized for being unable to explain why people often behave differently in same situations. Guthrie's contiguity theory specifies that "a combination of stimuli which has accompanied a movement will on its recurrence tend to be followed by that movement". According to Guthrie, all learning was a consequence of association between a particular stimulus and response. Furthermore, Guthrie argued that stimuli and responses affect specific sensory-motor patterns; what is learned are movements, not behaviors.

In contiguity theory, rewards or punishment play no significant role in learning since they occur after the association between stimulus and response has been made. Learning takes place in a single trial (all or none). However, since each stimulus pattern is slightly different, many trials may be necessary to produce a general response. One interesting principle that arises from this position is called “postremity” which specifies that we always learn the last thing we do in response to a specific stimulus situation.

Contiguity theory suggests that forgetting is due to interference rather than the passage of time; stimuli become associated with new responses. Previous conditioning can also be changed by being associated with inhibiting responses such as fear or fatigue. The role of motivation is to create a state of arousal and activity which produces responses that can be conditioned.

APPLICATION

Contiguity theory is intended to be a general theory of learning, although most of the research supporting the theory was done with animals. Guthrie did apply his framework to personality disorders (e.g. Guthrie, 1938).

EXAMPLE

The classic experimental paradigm for Contiguity theory is cats learning to escape from a puzzle box (Guthrie & Horton, 1946). Guthrie used a glass paneled box that allowed him to photograph the exact movements of cats. These photographs showed that cats learned to repeat the same sequence of movements associated with the preceding escape from the box. Improvement comes about because irrelevant movements are unlearned or not included in successive associations.

PRINCIPLES

- In order for conditioning to occur, the organism must actively respond (i.e., do things).
- Since learning involves the conditioning of specific movements, instruction must present very specific tasks.
- Exposure to many variations in stimulus patterns is desirable in order to produce a generalized response.
- The last response in a learning situation should be correct since it is the one that will be associated.

HULL - LEARNING THEORY INTRODUCTION

Learning is one of the most important topics in present-day psychology, yet it is an extremely difficult concept to define. Learning occupies a very important place in our life. Most of what we do or do not do is influenced by what we learnt it. Learning therefore provides a key to the structure of our personality and behavior. An individual starts to learning immediately after his birth or in a strict sense even in womb of the mother. Experience direct or indirect is found to play a dominant role in molding and shaping our behavior of the individual from the very beginning. The change in behavior brought about by experience is commonly known as learning. In this way, the term learning broadly speaking, stands for all those changes and modifications in the behavior of the individual which he undergoes during his life time.

DEFINITION

Gardner Murphy (1968)

The term learning covers every modification in behavior to meet environmental requirements.

Henry P. Smith (1962)

Learning is the acquisition of new behavior or the strengthening or weakening of old behavior as the result of experience.

Crow and Crow (1973)

Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things, and it operates in an individual's attempts to overcome obstacles or to adjust to new situation. It represents progressive changes in behavior. It enables him to satisfy interests to attain goals.

Kimble (1961)

Learning is a relatively permanent change in behavioral potentiality that occurs as a result of reinforced practice.

The above definition reveals the following facts:

1. Learning is a process and not a product.
2. It involves all those experience and training of an individual (right from birth) which help him to produce changes in his behavior
3. Learning leads to changes in behavior but this does not necessarily mean that these changes always bring about improvement or positive development. One has an equal chance to drift to the negative side of human personality.
4. Learning prepares an individual for any adjustment and adaptation that may be necessary

Clark Hull grew up handicapped and contracted polio at the age of 24, yet he became one of the great contributors to psychology. His family was not well off so his education had to be stopped at times. Clark earned extra money through teaching. Originally Clark aspired to be a great engineer, but that was before he fell in love with the field of Psychology.

By the age of 29 he graduated from Michigan University. When Clark was 34 when he received his Ph.D. in Psychology at the University of Wisconsin in 1918.

Soon after graduation he became a member of the faculty at the University of Wisconsin, where he served for 10 years. Although one of his first experiments was an analytical study of the effects of tobacco on behavioral efficiency, his lifelong emphasis was on the development of objective methods for psychological studies designed to determine the underlying principles of behavior.

Hull devoted the next 10 years to the study of hypnosis and suggestibility, and in 1933 he published *Hypnosis and Suggestibility*, while employed as a research professor at Yale University. This is where he developed his major contribution, an elaborate theory of behavior based on Pavlov's laws of conditioning. Pavlov provoked Hull to become greatly interested in the problem of conditioned reflexes and learning. In 1943 Hull published, *Principles of Behavior*, which presented a number of constructs in a detailed Theory of Behavior. Soon he became the most cited psychologist. For his effort, Hull received the Warren medal in 1945 from the society of Experimental Psychology. Hull was physically disabled most of his life. In 1948 he had coronary attack, and four years later he died. In his last book he wrote (*A behavior system*), he expressed regret that the third book that he had intended to write on learning would never be written.

HULL LEARNING THEORY

1. DERIVE REDUCTION THEORY

Drive Reduction Theory - the notion that behavior occurs in response to "drives" such as hunger, thirst, sexual interest, feeling cold, etc. When the goal of the drive is attained (food, water, mating, warmth) the drive is reduced, and this constitutes reinforcement of the behaviors that lead to the drive reduction, and ultimately learning.

Hull viewed the drive as a stimulus, arising from a tissue need, which in turn stimulates behavior. The strength of the drive is determined upon the length of the deprivation, or the intensity / strength of the resulting behavior. He believed the drive to be non-specific, which means that the drive does not direct behavior rather it functions to energize it. In addition this drive reduction is the reinforcement.

Hull's learning theory focuses mainly on the principle of reinforcement; when an S-R relationship is followed by a reduction of the need, the probability increases that in future similar situations the same stimulus will create the same prior response. Reinforcement can be defined in terms of reduction of a primary need. Just as Hull believed that there were secondary drives, he also felt that there were secondary reinforcements - "If the intensity of the stimulus is reduced as the result of a secondary or learned drive, it will act as a secondary reinforcement" (Schultz & Schultz, 1987, p 241). The way to strengthen the S-R response is to increase the number of reinforcements, habit strength.

2. CHANGE IN THE TRADITIONAL S-R NOTION

Hull introduced concept of intervening variables between S and R. Accordingly, when a stimulus(S) impinges on the organism, it results in a sensory neural impulse(s) a kind of stimulus trace. This stimulus trace ultimately causes a motor neural reaction(r) those results in an overt response (R). Thus we may have the formula S- s-r-R instead of the traditional S-R. However, there are so many other things within the inner mechanism of the organism like his interest, needs and drives also the reinforcing mechanism that may influence his response or behavior.

The link between the S-R relationships could be anything that might affect how an organism responds; learning, fatigue, disease, injury, motivation, etc. He labeled this relationship as "E", a reaction potential, or as **sEr**. Clark goal was to make a science out of all of these intervening factors. He classified his formula.

THE CONCEPT OF DRIVE STIMULI REDUCTION

Originally, Hull had a drive reduction theory of learning, but later he revised it to a Drive Stimuli Reduction theory of learning. One reason for the change was the realization that if a thirsty animal is given water as a reinforce for performing some act, it takes a considerable amount of time for the thirst drive to be satisfied by the water. The water goes into the mouth, the throat, the stomach, and eventually the blood. The effects of ingestion of water must ultimately reach the brain, and finally the thirst drive will be reduced.

Hull concluded that the drive reduction was too far removed from the presentation of the reinforce to explain how learning could take place. What was needed to explain learning was something that occurred soon after the presentation of a reinforce, and that something was the reduction of drive stimuli (SD).

REASONS

- Drive stimuli for thirst include dryness in the mouth and parched lips. Water almost immediately reduces such stimulation thus Hull had the mechanism he needed for explaining learning.
- It was provided by Sheffield and Roby (1950), who found that hungry rats were reinforced by non-nutritive saccharine, which could not possibly have reduced the hunger drive.

INCENTIVE MOTIVATION (K)

Results found by Creps and Zeaman led Hull to reach the conclusion that organisms learn as rapidly for a small incentive as they do for a large one, but they perform differently as size of the incentive (K) varies. The rapid change in performance following a change in reinforcement size is referred to as the **Creps effect**, after the man who first observed it.

STIMULUS-INTENSITY DYNAMISM

According to Hull, Stimulus-Intensity Dynamism (V) is an intervening variable that varies along with the intensity of the external stimulus (S). Stated simply, Stimulus-Intensity Dynamism indicates that the greater the intensity of a stimulus, the greater the probability that a learned response will be elicited. Thus we must revise Hull's earlier formula as follows

$$SER = (SHR \times D \times K \times V) - (SIR + IR) - SOR$$

It is interesting to note that because **sHr**, **D**, **K** and **V** are multiplied together, if any one had a value of zero, reaction potential would be zero. For example there could have been many pairings between S and R (sHr), but if drive is zero, reinforcement is zero or the organism cannot detect the stimulus, a learned response will not occur.

HULL'S FINAL SYSTEM SUMMARIZED

There are three kinds of variable in Hull's theory:

1. **Independent variable** – which are stimulus events systematically manipulated by the experimenter.
2. **Intervening variables** – which are process thought to be taking place within the organism but directly observable.
3. **Dependent variables** – which are some aspect of behavior that is measured by the experimenter in order to determine whether the independent variables had any effect.

EDUCATIONAL IMPLICATION

- The development of curriculum
In this reference Hull emphasized the importance of needs in learning process and accordingly the needs of all categories of children should be incorporated in the curriculum learning becomes meaningful only when it satisfies the needs of children.
- The know actual needs of the students by teacher and parents
Hull is felt that teachers and parents of the student should also share their responsibility in teaching the actual needs of the student through various means proper guidance is must for their attitude and aptitudes.
- Emphasized anxiety as a drive in human learning
From this line of reasoning, it follows that encouraging some anxiety in students that could subsequently be reduced by success is a necessary condition for classroom learning. Too little anxiety results in no learning (because there is no drive to be reduced), and too much anxiety is disruptive. Therefore, students who are mildly anxious are in the best position to learn and are therefore easiest to teach.

Hull's system of learning advocated the following chain sequence for improved results in the teaching-learning process:

- a) Drive – This is something which is needed by the learner in order to behave or respond.
- b) Cue – There must be something to which the learner must respond.
- c) Response – The learner must be made to respond in order to learn some act.
- d) Reward – The learner's response must be reinforced or rewarded, thus enabling him to learn what he wants to learn.

Hull developed a version of behaviorism in which the stimulus (S) affects the organism (O) and the resulting response (R) depends upon characteristics of both O and S. In other words, Hull was interested in studying intervening variables that affected behavior such as initial drive, incentives, inhibitors, and prior training (habit strength). Like other forms of behavior theory, reinforcement is the primary factor that determines learning. However, in Hull's theory, drive reduction or need satisfaction plays a much more important role in behavior than in other frameworks (i.e., connectionism, operant conditioning).

Hull's theoretical framework consisted of many postulates stated in mathematical form; They include:

- organisms possess a hierarchy of needs which are aroused under conditions of stimulation and drive,
- habit strength increases with activities that are associated with primary or secondary reinforcement,
- habit strength aroused by a stimulus other than the one originally conditioned depends upon the closeness of the second stimulus in terms of discrimination thresholds,
- stimuli associated with the cessation of a response become conditioned inhibitors,
- the more the effective reaction potential exceeds the reaction threshold, the shorter the latency of response. As these postulates indicate, Hull proposed many types of variables that accounted for generalization, motivation, and variability (oscillation) in learning.

One of the most important concepts in Hull's theory was the habit strength hierarchy: for a given stimulus, an organism can respond in a number of ways. The likelihood of a specific response has a probability which can be changed by reward and is affected by various other variables (e.g. inhibition). In some respects, habit strength hierarchies resemble components of cognitive theories such as schema and production systems.

APPLICATION

Hull's theory is meant to be a general theory of learning. Most of the research underlying the theory was done with animals, except for Hull et al. (1940) which focused on verbal learning. Miller & Dollard (1941) represents an attempt to apply the theory to a broader range of learning phenomena. As an interesting aside, Hull began his career researching hypnosis – an area that landed him in some controversy at Yale (Hull, 1933).

EXAMPLE

Here is an example described by Miller & Dollard (1941): A six year old girl who is hungry and wants candy is told that there is candy hidden under one of the books in a bookcase. The girl begins to pull out books in a random manner until she finally finds the correct book (210 seconds). She is sent out of the room and a new piece of candy is hidden under the same book. In her next search, she is much more directed and finds the candy in 86 seconds. By the ninth repetition of this

experiment, the girl finds the candy immediately (2 seconds). The girl exhibited a drive for the candy and looking under books represented her responses to reduce this drive. When she eventually found the correct book, this particular response was rewarded, forming a habit. On subsequent trials, the strength of this habit was increased until it became a single stimulus-response connection in this setting.

PRINCIPLES

- (1) Drive is essential in order for responses to occur (i.e., the student must want to learn).
- (2) Stimuli and responses must be detected by the organism in order for conditioning to occur (i.e., the student must be attentive).
- (3) Response must be made in order for conditioning to occur (i.e., the student must be active).
- (4) Conditioning only occurs if the reinforcement satisfied a need (i.e., the learning must satisfy the learner's wants).

CONCLUSION

Hull's system of learning is acclaimed and remembered for putting forward a most systematic, scientific and mathematical theory of learning. Hull was able to popularize a very innovative and objective behavioristic approach to learning which was more effective in comparison to the approach of his predecessors. The greatest contribution of Hull's theory lies in its emphasis on linking the learning to the needs of the children.

He says that it is the need, drive or drive stimuli that energize an individual to act or learn or behave. Therefore, he advocated the need-based goals of education, including need-based curricula and methods of teaching. Whereas needs start the process of learning, reinforcement and incentives act as catalytic agents for increasing one's efforts towards achieving the goals of learning. Therefore in any education process we must involve sufficient possibilities of proper motivation and reinforcement incentives.

CLASSICAL CONDITIONING: PROCEDURE, PHENOMENA AND RELATED ISSUES

Classical conditioning (also known as Pavlovian conditioning) is learning through association and was discovered by Pavlov, a Russian physiologist. In simple terms, two stimuli are linked together to produce a new learned response in a person or animal.

John Watson proposed that the process of classical conditioning (based on Pavlov's observations) was able to explain all aspects of human psychology.

Everything from speech to emotional responses was simply patterns of stimulus and response. Watson denied completely the existence of the mind or consciousness. Watson believed that all individual differences in behavior were due to different experiences of learning.

STAGE 1: BEFORE CONDITIONING:

In this stage, the unconditioned stimulus (UCS) produces an unconditioned response (UCR) in an organism.

In basic terms, this means that a stimulus in the environment has produced a behavior / response which is unlearned (i.e., unconditioned) and therefore is a natural response which has not been taught. In this respect, no new behavior has been learned yet.

This stage also involves another stimulus which has no effect on a person and is called the neutral stimulus (NS). The NS could be a person, object, place, etc.

The neutral stimulus in classical conditioning does not produce a response until it is paired with the unconditioned stimulus.

DURING CONDITIONING:

During this stage, a stimulus which produces no response (i.e., neutral) is associated with the unconditioned stimulus at which point it now becomes known as the conditioned stimulus (CS).

For example, a stomach virus (UCS) might be associated with eating a certain food such as chocolate (CS). Also, perfume (UCS) might be associated with a specific person (CS).

For classical conditioning to be effective, the conditioned stimulus should occur before the unconditioned stimulus, rather than after it, or during the same time. Thus, the conditioned stimulus acts as a type of signal or cue for the unconditioned stimulus.

AFTER CONDITIONING:

Now the conditioned stimulus (CS) has been associated with the unconditioned stimulus (UCS) to create a new conditioned response (CR).

For example, a person (CS) who has been associated with nice perfume (UCS) is now found attractive (CR). Also, chocolate (CS) which was eaten before a person was sick with a virus (UCS) now produces a response of nausea (CR).

CLASSICAL CONDITIONING IN THE CLASSROOM

The implications of classical conditioning in the classroom are less important than those of operant conditioning, but there is still a need for teachers to try to make sure that students associate positive emotional experiences with learning.

If a student associates negative emotional experiences with school, then this can obviously have bad results, such as creating a school phobia.

For example, if a student is bullied at school they may learn to associate the school with fear. It could also explain why some students show a particular dislike of certain subjects that continue throughout their academic career. This could happen if a student is humiliated or punished in class by a teacher.

Critical Evaluation

Classical conditioning emphasizes the importance of learning from the environment, and supports nurture over nature. However, it is limiting to describe behavior solely in terms of either nature or nurture, and attempts to do this underestimate the complexity of human behavior. It is more likely that behavior is due to an interaction between nature (biology) and nurture (environment).

A strength of classical conditioning theory is that it is scientific. This is because it's based on empirical evidence carried out by controlled experiments. For example, Pavlov (1902) showed how classical conditioning could be used to make a dog salivate to the sound of a bell.

Classical conditioning is also a reductionist explanation of behavior. This is because a complex

behavior is broken down into smaller stimulus-response units of behavior.

Supporters of a reductionist approach say that it is scientific. Breaking complicated behaviors down to small parts means that they can be scientifically tested. However, some would argue that the reductionist view lacks validity. Thus, while reductionism is useful, it can lead to incomplete explanations.

A final criticism of classical conditioning theory is that it is deterministic. This means that it does not allow for any degree of free will in the individual. Accordingly, a person has no control over the reactions they have learned from classical conditioning, such as a phobia.

BASIC PRINCIPLES OF CLASSICAL CONDITIONING

Classical conditioning is a form of learning whereby a conditioned stimulus (CS) becomes associated with an unrelated unconditioned stimulus (US) in order to produce a behavioral response known as a conditioned response (CR). The conditioned response is the learned response to the previously neutral stimulus. The unconditioned stimulus is usually a biologically significant stimulus such as food or pain that elicits an unconditioned response (UR) from the start. The conditioned stimulus is usually neutral and produces no particular response at first, but after conditioning it elicits the conditioned response.

Extinction is the decrease in the conditioned response when the unconditioned stimulus is no longer presented with the conditioned stimulus. When presented with the conditioned stimulus alone, the individual would show a weaker and weaker response, and finally no response. In classical-conditioning terms, there is a gradual weakening and disappearance of the conditioned response. Related to this, spontaneous recovery refers to the return of a previously extinguished conditioned response following a rest period. Research has found that with repeated extinction/recovery cycles, the conditioned response tends to be less intense with each period of recovery.

PAVLOV'S FAMOUS STUDY

The best-known of Pavlov's experiments involves the study of the salivation of dogs. Pavlov was originally studying the saliva of dogs as it related to digestion, but as he conducted his research, he noticed that the dogs would begin to salivate every time he entered the room—even if he had no food. The dogs were associating his entrance into the room with being fed. This led Pavlov to design a series of experiments in which he used various sound objects, such as a buzzer, to condition the salivation response in dogs.

He started by sounding a buzzer each time food was given to the dogs and found that the dogs would start salivating immediately after hearing the buzzer—even before seeing the food. After a period of time, Pavlov began sounding the buzzer without giving any food at all and found that the dogs continued to salivate at the sound of the buzzer even in the absence of food. They had learned to associate the sound of the buzzer with being fed.

If we look at Pavlov's experiment, we can identify the four factors of classical conditioning at work:

- The unconditioned response was the dogs' natural salivation in response to seeing or smelling their food.
- The unconditioned stimulus was the sight or smell of the food itself.
- The conditioned stimulus was the ringing of the bell, which previously had no association with food.

- The conditioned response, therefore, was the salivation of the dogs in response to the ringing of the bell, even when no food was present.

Pavlov had successfully associated an unconditioned response (natural salivation in response to food) with a conditioned stimulus (a buzzer), eventually creating a conditioned response (salivation in response to a buzzer). With these results, Pavlov established his theory of classical conditioning.

NEUROLOGICAL RESPONSE TO CONDITIONING

Consider how the conditioned response occurs in the brain. When a dog sees food, the visual and olfactory stimuli send information to the brain through their respective neural pathways, ultimately activating the salivation glands to secrete saliva. This reaction is a natural biological process as saliva aids in the digestion of food. When a dog hears a buzzer and at the same time sees food, the auditory stimulus activates the associated neural pathways. However, because these pathways are being activated at the same time as the other neural pathways, there are weak synapse reactions that occur between the auditory stimulus and the behavioral response. Over time, these synapses are strengthened so that it only takes the sound of a buzzer (or a bell) to activate the pathway leading to salivation.

BEHAVIORISM AND OTHER RESEARCH

Pavlov's research contributed to other studies and theories in behaviorism, which is an approach to psychology interested in observable behaviors rather than the inner workings of the mind. The philosopher Bertrand Russell argued that Pavlov's work was an important contribution to a philosophy of mind. Pavlov's research also contributed to Hans Eysenck's personality theory of introversion and extroversion. Eysenck built upon Pavlov's research on dogs, hypothesizing that the differences in arousal that the dogs displayed was due to inborn genetic differences. Eysenck then extended the research to human personality traits.

Pavlov's research further led to the development of important behavior-therapy techniques, such as flooding and desensitizing, for individuals who struggle with fear and anxiety. Desensitizing is a kind of reverse conditioning in which an individual is repeatedly exposed to the thing that is causing the anxiety. Flooding is similar in that it exposes an individual to the thing causing the anxiety, but it does so in a more intense and prolonged way.

CLASSICAL CONDITIONING IN HUMANS

The influence of classical conditioning can be seen in responses such as phobias, disgust, nausea, anger, and sexual arousal. A familiar example is conditioned nausea, in which the sight or smell of a particular food causes nausea because it caused stomach upset in the past. Similarly, when the sight of a dog has been associated with a memory of being bitten, the result may be a conditioned fear of dogs.

As an adaptive mechanism, conditioning helps shield an individual from harm or prepare them for important biological events, such as sexual activity. Thus, a stimulus that has occurred before sexual interaction comes to cause sexual arousal, which prepares the individual for sexual contact. For example, sexual arousal has been conditioned in human subjects by pairing a stimulus like a picture of a jar of pennies with views of an erotic film clip. Similar experiments involving blue gourami fish and domesticated quail have shown that such conditioning can increase the number of offspring. These results suggest that conditioning techniques might help to increase fertility rates in infertile individuals and endangered species.

ISSUES

Classical conditioning is one of those introductory psychology terms that gets thrown around. Many people have a general idea that it is one of the most basic forms of associative learning, and people often know that Ivan Pavlov's 1927 experiment with dogs has something to do with it, but that is often where it ends.

CLASSICAL CONDITIONING, EXPLAINED

The most important thing to remember is that classical conditioning involves automatic or reflexive responses, and not voluntary behavior (that's operant conditioning, and that is a different post). What does this mean? For one thing, that means that the only responses that can be elicited out of a classical conditioning paradigm are ones that rely on responses that are naturally made by the animal (or human) that is being trained. Also, it means that the response you hope to elicit must occur below the level of conscious awareness - for example, salivation, nausea, increased or decreased heart rate, pupil dilation or constriction, or even a reflexive motor response (such as recoiling from a painful stimulus). In other words, these sorts of responses are involuntary.

The basic classical conditioning procedure goes like this: a neutral stimulus is paired with an unconditional stimulus (UCS). The neutral stimulus can be anything, as long as it does not provoke any sort of response in the organism. On the other hand, the unconditional stimulus is something that reliably results in a natural response. For example, if you shine a light into a human eye, the pupil will automatically constrict (you can actually see this happen if you watch your eyes in a mirror as you turn on and off a light). Pavlov called this the "unconditional response." (UCR)

As soon as the neutral stimulus is presented with the UCS, it becomes a conditional stimulus (CS). If the CS and UCS always occur together, then the two stimuli would become associated over time. The response that was initially produced in response to the UCS would also be produced in response to the CS, even if it was presented alone. Pavlov called this the "conditional response." (CR)

To make this a bit more concrete, we'll use Pavlov's dogs as an example. Before learning took place, the dogs would reliably salivate (UCR) when given meat powder (UCS), but they gave no response to the ringing of a bell (neutral). Then Pavlov would always ring a bell just before he would present the dogs with some meat powder. Pretty soon, the dogs began to associate the sound of the bell with the impending presence of meat powder. As a result, they would begin to salivate (CR) as soon as they heard the bell (CS), even if it was not immediately followed by the meat powder (UCS). In other words, they learned that the bell was a reliable predictor of meat powder. In this way, Pavlov was able to elicit an involuntary, automatic, reflexive response to a previously neutral stimulus.

Classical conditioning can help us understand how some forms of **addiction**, or drug dependence, work. For example, the repeated use of a drug could cause the body to compensate for it, in an effort to counterbalance the effects of the drug. This causes the user to require more of the substance in order to get the equivalent effect (this is called tolerance). However, the development of tolerance also takes into account other environmental variables (the conditional variables) - this is called the situational specificity of tolerance. For example, alcohol tends to taste a certain way, and when alcohol is consumed in the usual way, the body responds in an effort to counteract the effect. But, if the alcohol is delivered in a novel way (such as in Four Loko), the individual could overdose. This effect has also been observed among those who have become tolerant to otherwise lethal amounts of opiates: they may experience an overdose if they take their typical dose in an

atypical setting. These results have been found in species ranging from rats and mice to humans. In these examples, it's the environmental context (conditional stimuli) that prompts the body to prepare for the drug (the conditional response). But if the conditional stimuli are absent, the body is not able to adequately prepare itself for the drug, and bad things could happen.

Another example of classical conditioning is known as the **appetizereffect**. If there are otherwise neutral stimuli that consistently predict a meal, they could cause people to become hungry, because those stimuli induce involuntary changes in the body, as a preparation for digestion. There's a reason it's called the "dinner bell," after all.

Classical conditioning is also being used in **wildlife conservation efforts**! At Extinction Countdown, John Platt pointed out last month that taste aversion, which is a form of classical conditioning, is being used to keep lions from preying on cattle. This should, in turn, prevent farmers from killing the lions.

INSTRUMENTAL LEARNING: PHENOMENA, PARADIGMS AND THEORETICAL ISSUES; **Introduction To Instrumental Conditioning**

We now shift from the topic of classical conditioning to that of **instrumental** (or as Skinner terms it, **operant**) **conditioning**. This topic will prove a bit more complex in its findings. As you will see, however, many of the ideas that were important in classical conditioning will prove relevant here. Indeed, there has long been a debate over whether classical and operant conditioning ought to be regarded as truly different forms of learning. They appear to differ in the sense that classical conditioning generally involves the presence of **reflex actions**, whereas instrumental conditioning generally involves modifications of **voluntary behavior** contingent on presence of **reinforcers** or **punishers**. Whether that is a sufficient reason to distinguish them is arguable, as we will see later. My sense of the field today is that most theorists would like to see similar theories explain the results in both. Thus, it will not surprise you, for example, that a modified version of the Rescorla-Wagner model has also been proposed for instrumental conditioning.

TWO EARLY VIEWS OF INSTRUMENTAL CONDITIONING

We will look at two quite different claims about the nature of instrumental conditioning. One comes from **Watson**, the author of the 1913 behaviorist manifesto, *Psychology as the behaviorist views it*, and the second comes from **Thorndike**, who can probably safely be credited with conducting the first truly sophisticated and careful observations of complex animal learning. Their accounts differ in ways that prefigured an important debate about what was needed for learning to occur.

First, however, let us distinguish instrumental conditioning from classical conditioning. In instrumental conditioning, an animal makes one of a number of possible responses in the presence of some stimulus complex or context. That response may lead to some outcome. We typically define learning in this circumstance as an alteration in some observed characteristic of the response such as its frequency, latency, or amplitude. We will revisit this definition in more detail later, once we have examined several theories of what gets acquired, and why.

For now, we can talk about instrumental conditioning as the type of learning involved in navigating a maze, choosing the correct one of several doors to run to, or even performing some response that will be successful in avoiding a future shock. In instrumental conditioning, **new** responses may be taught that differ from any reflexive response already in the animal's behavioral repertoire.

BASIC PARADIGMS

We have already introduced two general paradigms involving acquisition and extinction. In acquisition, an outcome is typically paired with making a response in the presence of a stimulus; in extinction, that pairing typically ceases. Within this broad framework (particularly with respect to acquisition), we may distinguish several additional paradigms.

In **appetitive** or **approach learning**, the animal makes a response that results in a desired reward. This is the type of learning involving reinforcement that we have implicitly and explicitly discussed so far. But it is not the only paradigm based on reinforcement. Another that deserves particular note is **omission training**, in which an animal has to suppress or withhold a response in order to get its reward. **Sheffield**, for example, trained dogs to salivate in the presence of a tone associated with food, and then shifted them to omission training. In this latter phase, the dogs had to avoid salivating to the tone for several seconds to get the food. Omission training is initially typically difficult, and displays a relatively slow learning curve. However, there are several studies suggesting that in the long run, it will be as effective as extinction in decreasing the frequency of a response. Omission training is sometimes referred to as negative punishment to indicate that making the response is associated with removal of a reinforcer (which thus acts as a punishment).

Another paradigm based on reinforcement is **escape learning**. In escape learning, the animal learns a response that gets it away from punishment, either by turning off the punisher, or by allowing the animal to leave the area where the punishment was administered. Escape learning is closely associated with another paradigm, **avoidance learning**. In avoidance learning, the punishment is intermittent rather than continuous. If the animal makes the proper response before the punishment comes on, it will succeed in canceling that punishment. In avoidance learning, animals typically start out by escaping the aversive stimulation (making a response during the punishment that stops it), and then come to make the response early enough that they subsequently successfully avoid the aversive stimulation.

Punishment training (or **aversive learning**), of course, involves the administration of an unpleasant, aversive outcome following a response. Thus, punishment training, omission training, and extinction all have in common reducing the level of a given response, whereas appetitive learning, escape learning, and avoidance learning attempt to increase response level. There are some obvious interplays in paradigms here, depending on which response you focus on. Often, aspects of several different paradigms combine: One response may be punished while another is reinforced. We may also distinguish between **signaled** and **unsignaled learning**. A discrete, distinct stimulus is present in signaled learning, but not in unsignaled learning. Thus, for example, in unsignaled avoidance, shocks can occur at regular intervals that could be avoided if the animal responds shortly before the shock's onset. There is no physical stimulus signaling the shock; the animal in this case needs to rely on an internal sense of time. In unsignaled conditions, features such as time or the contextual cues presumably act as stimuli.

Another paradigm, **transfer training** will prove important, especially when we focus on discrimination in a later chapter. In transfer training, we look at the effects of learning one task on another. Transfer might be **nonexistent (zero)**, **positive (facilitation)**: the learning is faster), or **negative (inhibition)**: there is interference). In addition, transfer effects might be **proactive** (in which we look at the effect of an earlier task on the learning or performance of a later task), or **retroactive** (in which we saw how the later task influences performance on the earlier one).

A final paradigm involves **shaping**. Normally, approach learning applies to responses that are not especially frequent to start with, since we want to track an increase in frequency as one of our measures of learning. Thus, we find ourselves in the following situation: We sit in the lab, watching our animal subject, waiting for it to make the desired response so that we can administer the reinforcer.

Such a procedure will obviously be inefficient. In some cases (such as a pig rolling a coin), the wait may be very long indeed! Hence, a technology has developed that involves increasing the probability of having the animal emit that response so that we can then train it further through reinforcement. This technology, called shaping, requires **reinforcing successive approximations to the desired response**.

Shaping works as follows. We start out by identifying a high-frequency component of the response we want, and we reinforce that. So, if we want our rat to press a bar on the left side of an experimental chamber, then a high-frequency component would involve having the rat be in the left half of the chamber. While it is exploring its environment, we reinforce for crossing over to the left.

Then, as it increases its time on the left, we drop the reinforcer. That will cause the behavior to become more variable. We await some response yet closer to what we want to train (such as being near the bar), and when that occurs we reintroduce the reinforcer. And then, of course, we cycle the process through again in order to obtain yet a closer approximation (such as touching the bar). Shaping is a very powerful technique, not only because of its ability to 'coax' low frequency responses out of an animal, but also -- and especially -- because of **its ability to mold a response that is not normally part of the animal's repertoire!** Thus, by combining shaping and chaining, instrumental conditioning allows us to train **totally new responses**, rather than just transfer stimulus control of an old response to a new stimulus.

Operant behavior involves adaptation to the consequences of responding; it is the prototype of adaptive behavior during the life of the individual -- the ontogenetic equivalent of Darwinian natural selection in phylogeny. Techniques for exploring operant behavior exploded with the invention of the Skinner box and the discovery of the orderly and powerful effects of schedules of reinforcement. In the 1950s and 1960s, much research addressed the limits of operant conditioning and in particular the intimate relationship between the processes underlying operant and classical conditioning. In recent decades, two research areas, interval timing and choice, have dominated the field. We have reviewed these topics and, in addition, discussed post-Skinner developments in the economics of operant behavior. We hope, with this chapter, to have aroused the interest of the reader for this fascinating and lively field of behavioral science.

Instrumental Conditioning of Avoidance. Another important model of learning and stress reactivity derived from research with animals was pioneered by B. F. Skinner (1938; Ferster & Skinner, 1957) in landmark works on "contingencies of reinforcement" affecting the behaviors of animals such as rats and pigeons. Skinner observed that animals tend to increase the rate of behaviors that are followed by certain changes in their environment.

He called this phenomenon "reinforcement" that occurs due to the animal's learning that there is a "contingent" relationship between doing that behavior (e.g., pecking or pushing a lever in the cage) and receiving a desired outcome (the reinforce—for example, a pellet of food). Behavior that

might previously have been rare or sporadic can become regular and frequent if the contingency of reinforcement is set up to teach the animal that the behavior seems to produce the reinforcer. This is another form of conditioned learning, which is called instrumental conditioning because the animal learns that a behavior is “instrumental” in increasing the likelihood that a reinforcer will occur.

“Operant conditioning” does not refer to a single therapeutic technique. Instead, the term refers to an important form of learning, or conditioning, in which behavior is primarily controlled by its consequences. The consequences of a particular kind of behavior in one setting can either increase or decrease the probability of such behavior occurring in similar settings in the future. Descriptions of the consequences of behavior, called rules, can have similar effects. A great deal is known concerning how consequences affect behavior, and this knowledge has been put to good use in designing interventions shown to be effective across a wide range of client populations, behavior problems, and settings.

THE MAJOR PHENOMENA OF INSTRUMENTAL CONDITIONING

As Skinner noted, classical and instrumental conditioning are different in important ways: Classical conditioning builds on a response (UR) that’s automatically triggered by a stimulus (US); instrumental conditioning involves behaviors that appear to be voluntary. Classical conditioning involves learning about the relation between two stimuli (US and CS); instrumental conditioning involves learning about the relation between a response and a stimulus (the operant and a reward). Even with these differences, modern theorists have argued that the two forms of conditioning have a lot in common. This makes sense because both involve learning about relationships among simple events (stimuli or responses).

It’s perhaps inevitable, then, that many of the central phenomena of instrumental learning parallel those of classical conditioning. For example, in classical conditioning, learning trials typically involve the presentation of a CS followed by a US. In instrumental conditioning, learning trials typically involve a response by the organism followed by a reward or **reinforcer**. The reinforcement often involves the presentation of something good, such as grain to a hungry pigeon. Alternatively, reinforcement may involve the termination or prevention of something bad, such as the cessation of a loud noise.

In both forms of conditioning, the more such pairings there are, the stronger the learning. And if we discontinue these pairings so that the CS is no longer followed by the US or the response by a reinforcer, the result is extinction.

GENERALIZATION AND DISCRIMINATION

An instrumental response is not directly triggered by an external stimulus, the way a CR or UR is. But that doesn’t mean external stimuli have no role here. In instrumental conditioning, external events serve as discriminative stimuli, signaling for an animal what sorts of behaviors will be rewarded in a given situation. For example, suppose a pigeon is trained to hop onto a platform to get some grain. When a green light is on, hopping on the platform pays off. But when a red light is on, hopping gains no reward. Under these circumstances, the green light becomes a positive discriminative stimulus and the red light a negative one (usually labeled S^+ and S^- , respectively). The pigeon swiftly learns this pattern and so will hop in the presence of the first and not in the presence of the second.

Other examples are easy to find. A child learns that pinching her sister leads to punishment when her parents are on the scene but may have no consequences otherwise. In this situation, the child may learn to behave well in the presence of the S^+ (i.e., when her parents are there) but not in other circumstances. A hypochondriac may learn that loud groans will garner sympathy and support from others but may bring no benefits when others are not around. As a result, he may learn to groan in social settings but not when alone.

Let's be clear, though, about the comparison between these stimuli and the stimuli central to classical conditioning. A CS^+ tells the animal about events in the world: "No matter what you do, the US is coming." The S^+ , on the other hand, tells the animal about the impact of its own behavior: "If you respond now, you'll get rewarded." The CS^- indicates that no matter what the animal does, no US is coming. The S^- , in contrast, tells the animal something about its behavior—namely, that there's no point in responding right now.

Despite these differences, generalization in instrumental conditioning functions much the way it does in classical conditioning, and likewise for discrimination. One illustration of these parallels lies in the generalization gradient. We saw earlier that if an organism is trained with one CS (perhaps a high tone) but then tested with a different one (a low tone), the CR will be diminished. The greater the change in the CS, the greater the drop in the CR's strength. The same pattern emerges in instrumental conditioning. In one experiment, pigeons were trained to peck at a key illuminated with yellow light. Later, they were tested with light of varying wavelengths, and the results showed an orderly generalization gradient (Figure 7.22). As the test light became less similar to the original S^+ , the pigeons were less inclined to peck at it (Guttman & Kalish, 1956).

BEHAVIOR MOTIVATION

Once we've identified a stimulus as a reinforcer, what determines how effective the reinforcer will be? We know that some reinforcers are more powerful than others—and so an animal will respond more strongly for a large reward than for a small one. However, what counts as large or small depends on the context. If a rat is used to getting 60 food pellets for a response, then 16 pellets will seem measly and the animal will respond only weakly for this puny reward. But if a rat is used to getting only 4 pellets for a response, then 16 pellets will seem like a feast and the rat's response will be fast and strong (for the classic demonstration of this point, see Crespi, 1942). Thus, the effectiveness of a reinforcer depends largely on what other rewards are available (or have recently been available); this effect is known as **behavioral contrast**.

Contrast effects are important for their own sake, but they may also help explain another (somewhat controversial) group of findings. In one study, for example, nursery-school children were given an opportunity to draw pictures. The children seemed to enjoy this activity and produced a steady stream of drawings. The experimenters then changed the situation: They introduced an additional reward so that the children now earned an attractive "Good Player" certificate for producing their pictures. Then, later on, the children were again given the opportunity to draw pictures—but this time with no provision for "Good Player" rewards. Remarkably, these children showed considerably less interest in drawing than they had at the start and chose instead to spend their time on other activities (see, for example, Lepper, Greene, & Nisbett, 1973; also Kohn, 1993).

Some theorists say these data illustrate the power of behavioral contrast. At the start of the study, the activity of drawing was presumably maintained by certain reinforcements in the situation—perhaps encouragement from the teachers or comments by other children. Whatever the

reinforcements were, they were strong enough to maintain the behavior; we know this because the children were producing drawings at a steady pace. Later on, though, an additional reinforcement (the “Good Player” certificate) was added and then removed. At that point the children were back to the same rewards they’d been getting at the start, but now these rewards seemed puny in comparison to the greater prize they’d been earning during the time when the “Good Player” award was available. As a consequence, the initial set of rewards was no longer enough to motivate continued drawing.

Other theorists interpret these findings differently. In their view, results like this one suggest that there are actually two different types of reward. One type is merely tacked onto a behavior and is under the experimenter’s control; it’s the sort of reward that’s in play when we give a pigeon a bit of food for pecking a key, or hand a factory worker a paycheck for completing a day’s work. The other type of reward is intrinsic to the behavior and independent of the experimenter’s intentions; these rewards are in play when someone is engaging in an activity just for the pleasure of the activity itself.

In addition, these two forms of reward can interfere with each other. Thus, in the study with the “Good Player” certificates, the children were initially drawing pictures for an intrinsic reward. Drawing, in other words, was a form of play engaged in for its own sake. However, once the external rewards (the certificates) entered the situation, the same activity became a form of work—something you do for a payoff. And once the activity was redefined in this way, then the absence of a payoff meant there was no longer any point in drawing.

Debate continues about which of these interpretations is preferable—the one based on behavioral contrast or the one based on intrinsic motivation. (It also seems plausible that both interpretations may capture aspects of what’s going on here.) Clearly, there’s more to be learned about reinforcement and the nature of motivation. (For further exploration, see Bowles, 2008; Deci, Koestner, & Ryan, 1999a, 1999b; Eisenberger, Pierce, & Cameron, 1999; Henderlong & Lepper, 2002.)

REINFORCEMENT-BASED LEARNING

Rewards and punishers, in contrast, played a pivotal role in the work of Thorndike, who is often credited with founding the field of instrumental conditioning. Thorndike published a monograph in 1898 on his studies with animals such as cats. He set up an experimental apparatus termed a **puzzle box**: a cage in which the animal was placed, and which could be escaped through the performance of a simple response such as pulling on a rope attached to a door. These studies really involved the first careful, detailed observations of what animals in general learned, as opposed to anecdotal stories collected of amazing things animals did that obviously proved their intelligence. (Television still plays into that sort of approach, needless to say!)

Thorndike asked a very simple question: Would escape from a puzzle box exhibit any signs of intelligence? Would it display evidence of **insight**, in which the animal would be able to glance about its environment, understand that the rope was attached to the door, and realize that it needed only to pull on the rope to get out? To answer this question, Thorndike repeatedly placed animals in the same puzzle box, and measured how long it took them to escape. And what he found was that **the time to escape decreased only gradually**. By the end of the experiment, after 20 or so trials, cats would easily leave the box by performing the appropriate response as soon as they were placed in it. But, their history clearly demonstrated that this had to have been a learned response. In particular, Thorndike pointed out that an animal making the correct response on a given trial early

in training would not necessarily choose that same response as its first response on the next trial. So, rather than insight, he concluded that learning involved **trial- and-error**.

Trial-and-error refers to the gradual accumulation of correct responses through a slow process of trying out all sorts of possibilities, and slowly weeding out the ones that do not work. As did Watson, Thorndike thought animals were acquiring associations between stimulus configurations (such as the puzzle box) and certain responses. But unlike Watson, he claimed that an additional factor was important in the acquisition of these associations: They would depend on the outcome of the animal's actions. This involved a principle Thorndike termed the **Law of Effect**. Put briefly, this law claimed that an association between a stimulus and a response would strengthen if the response were followed by a **satisfactory state of affairs**, and would weaken if the response were followed by an **unsatisfactory state of affairs**. Thus, Thorndike deliberately included Bentham's notion of hedonistic value as a principle governing the formation of an association, in contrast to Watson. Rather than being a simple contiguity theory, this was a **reinforcement theory**: In modern terms, learning of an association will occur when there is a reinforcer following a response.

There are, of course, a number of interpretations available to account for how a reinforcer might operate according to the law of effect. One of the first to come to most people's minds is a **teleological** or **purposive** explanation: The animal performs a response because it desires the outcome. But of course, desiring an outcome is a mental state that involves an object not present at the time the animal is performing the response. That type of an explanation would violate the positivist program Watson insisted everyone follow. Thus, as an alternative, we might propose that a positive outcome has an automatic effect of strengthening the association: The animal does not perform the response because it wants the outcome, but rather because the response is strongly associated to the stimulus that is present.

Here is what Thorndike actually said regarding satisfying and unsatisfying states (1913, p. 2):
By a satisfying state of affairs is meant one which the animal does nothing to avoid, often doing things which maintain or renew it. By an annoying state of affairs is meant one which the animal does nothing to preserve, often doing things which put an end to it.

Although he was accused of using hopelessly mentalistic terms in describing learning as depending on satisfactory or unsatisfactory states, his actual definition provided a clear behavioral test for determining when one or the other state was present. In that sense, it ought to have troubled people no more than Watson's use of the term "emotional."

Note too that Thorndike did not include the outcome in the association. As we will see, other theorists have claimed that associations to the outcome may also form, so that we can have S-R associations, R-O associations, and even S-O associations. To anticipate how such a model might differ from Thorndike's, a strong S-R association may exist despite a highly unpleasant or unsatisfying outcome: The presence of an R-O association in that event may serve to inhibit the R excited by presence of an associated stimulus.

Thorndike also proposed another principle, the **Law of Exercise** (sometimes called the **Law of Use**). This was essentially a principle of practice, somewhat similar to Watson's notion of frequency: An association would strengthen if practiced. Both laws were revised in his later work: the Law of Effect was essentially restricted to satisfactory outcomes, and the Law of Use was modified to include outcomes rather than simple exercise.

Thorndike also spoke of the value of different satisfactory states, so that strong satisfiers would do a better job of strengthening an association than weak satisfiers. And as an interesting historical footnote, he actually contradicted one of the major principles of strict contiguity by proposing an early version of belongingness by which some things would be more likely to associate together than others.

In some sense, **Skinner** may be regarded as Thorndike's intellectual successor. Skinner proposed similar ideas involving the **law of reinforcement** and the **law of punishment**. According to Skinner, a **reinforcer** was any event that, following a response, made that response more likely, whereas a punisher was any event that had the opposite effect. To try to identify reinforcers and punishers in a way that wasn't completely circular (and also wasn't mentalistic), Skinner imposed a condition of **transituationality**: A reinforcer or punisher, once identified in terms of its effects on one response, also has to be shown capable of having a similar effect in other situations, on other responses. Otherwise, we find ourselves defining a response as that which, when followed by a reinforcer, increases in frequency. And that type of definition, of course, reciprocally defines responses and reinforcers in terms of one another in an uninteresting, circular fashion.

With this as background, let us look at some of the basic findings in instrumental conditioning.

REINFORCEMENT: BASIC VARIABLES

One of the most critical challenges in applied empirical research is to draw causal inference from observational data. Empirical marketing research, which often involves causal analysis of the impact of marketing strategy, is no exception. A central difficulty is endogeneity of variables entering the causal relationship, arising from either omitted variable bias, simultaneity bias, sample selection bias, or measurement errors. According to recent research, mentions of endogeneity and procedures to address it have risen 5x across the field's top four journals (Rutz and Watson (2019)). Instrumental Variable (IV) methods are among the most frequently used techniques to address such endogeneity issues. Instruments that are correlated with the endogenous variable but are otherwise not associated with the outcome variable can be used to partition the variance of the endogenous variable into endogenous and exogenous components.

The method of instrumental variables is based on using the variation in the exogenous component of the endogenous variable induced by the variation in the instrumental variable to make inference of causal effects. In recent years, use of the IV method has come under criticism in Marketing (e.g. Rossi (2014)) and multiple other disciplines (e.g. Bound et al. (1995) and Young (2017) in Economics; Yogo (2004), Stock and Yogo (2002), and Hausman et al. (2005) in Finance). This is because IVs used in practice are often weakly correlated with the endogenous variables, e.g. the instruments used in practice induce limited variation in the endogenous variables leading to impractically large imprecision of estimates of causal effects.

In the extreme case when the correlation becomes sufficiently weak, this leads to a formal "weak instruments" problem whereby standard asymptotics break down, and the estimated parameters are no longer even consistent and have a non-standard asymptotic distribution (see Stock and Wright (2000) and Staiger and Stock (1994)). The bias becomes worse (Hausman et al. (2005)) when the researcher adds more weak instruments.

The problem can be acute for industrial organization models (e.g., Berry et al. (1995), Arellano and

Bond (1991), Arellano and Bover (1995), Blundell and Bond (1998), Hendel and Nevo (2006)), which involve estimating parameters from highly nonlinear functions and makes even the detection of weak IV's more challenging.

Such models have been widely used in marketing literature and remain the workhorse models for studying many marketing problems (see Goldfarb et al. (2009), Chintagunta and Nair (2011) and many others) Constructing strong and valid instruments is, therefore, an important endeavor for causal inference from observational data. In this paper, we approach the problem of constructing strong instrumental variables from exogenous information in causal models as a (supervised) machine learning problem. We first formulate the choice of construction of instruments in a causal model as a decision problem that is amenable to the learning approach. The key empirical problem which arises for the econometrician that is distinct from the machine learner is that, in the typical applied context, the econometrician does not have the luxury of treating the sample in-hand as the training sample for the decision problem. Instead, the sample in-hand is typically the only information from which instruments must be constructed and causal inference must simultaneously be derived. We extend the standard learning framework to develop an algorithm we term "MLIV Algorithm", which allows training of instruments and causal inference to be simultaneously performed from sample data.

RELATED LITERATURE

As discussed above, the standard existing approach to weak IV concerns is approached through approximation of optimal instruments. Most work on optimal instrument variables in linear models casts the problem as a selection problem among the available exogenous variables (and their transformations e.g., b- splines). Early work on instrument selection goes back to ((Kloek and Mennes 1960) and Amemiya (1966)) where they studied using "selected" principal components of the many available instruments to counter inference issues due to many instruments. Further work by (Kapetanios and Marcellino (2010)) proposed using factor analysis for decomposing the high-dimensional instruments onto a lowdimensional space.

Both principal component analysis and factor analysis are not targeted at approximating the optimal instruments, but rather at coming up with a low dimensional vector that summarizes the high- dimensional instruments, which could potentially yield (Amemiya (1966)) better performance in terms of bias and mean squared error. Recent work on instrument selection assumes strong sparsity of the optimal instruments structure (i.e. a small set of the available IVs are valid and sufficient for first stage).

Work by (Bai and Ng (2009)) demonstrate how boosting can be used for recovering the sparse structure but do not provide any formal proof. (Belloni et al. (2012)) explicitly shows how Lasso can be used for instrument selection among a large set of candidate instruments under the strong sparsity assumption. Further they are also able to prove theoretical consistency and other inference results for their IV estimator.

Their proposed approach does not work as well when sparsity is violated, i.e. most instruments are weak, as it selects all of the weak IVs or drops them all. Unlike the extant literature, our learning approach to instrumental variables still exhibits asymptotic guarantees and does not rely on any sparsity assumption on the optimal instrument structure. Further, our approach allows the researcher to apply a broad arsenal of machine learning methods in constructing the instrumental variables.

REINFORCEMENT SCHEDULES

Remember, the best way to teach a person or animal a behavior is to use positive reinforcement. For example, Skinner used positive reinforcement to teach rats to press a lever in a Skinner box. At first, the rat might randomly hit the lever while exploring the box, and out would come a pellet of food. After eating the pellet, what do you think the hungry rat did next? It hit the lever again, and received another pellet of food. Each time the rat hit the lever, a pellet of food came out. When an organism receives a reinforcer each time it displays a behavior, it is called **continuous reinforcement**. This reinforcement schedule is the quickest way to teach someone a behavior, and it is especially effective in training a new behavior. Let's look back at the dog that was learning to sit earlier in the module. Now, each time he sits, you give him a treat. Timing is important here: you will be most successful if you present the reinforcer immediately after he sits, so that he can make an association between the target behavior (sitting) and the consequence (getting a treat).

Once a behavior is trained, researchers and trainers often turn to another type of reinforcement schedule—partial reinforcement. In **partial reinforcement**, also referred to as intermittent reinforcement, the person or animal does not get reinforced every time they perform the desired behavior. There are several different types of partial reinforcement schedules (Table 1). These schedules are described as either fixed or variable, and as either interval or ratio. Fixed refers to the number of responses between reinforcements, or the amount of time between reinforcements, which is set and unchanging. Variable refers to the number of responses or amount of time between reinforcements, which varies or changes. Interval means the schedule is based on the time between reinforcements, and ratio means the schedule is based on the number of responses between reinforcements.

Reinforcement Schedule	Description	Result
Fixed interval	Reinforcement is delivered at predictable time intervals (e.g., after 5, 10, 15, and 20 minutes).	Moderate response rate with significant pauses after reinforcement
Variable interval	Reinforcement is delivered at unpredictable time intervals (e.g., after 5, 7, 10, and 20 minutes).	Moderate yet steady response rate
Fixed ratio	Reinforcement is delivered after a predictable number of responses	High response rate with pauses after reinforcement

(pain relief) only occurs on a fixed interval, there is no point in exhibiting the behavior when it will not be rewarded.

With a **variable interval reinforcement schedule**, the person or animal gets the reinforcement based on varying amounts of time, which are unpredictable. Say that Manuel is the manager at a fast-food restaurant. Every once in a while someone from the quality control division comes to Manuel's restaurant. If the restaurant is clean and the service is fast, everyone on that shift earns a \$20 bonus. Manuel never knows when the quality control person will show up, so he always tries to keep the

restaurant clean and ensures that his employees provide prompt and courteous service. His productivity regarding prompt service and keeping a clean restaurant are steady because he wants his crew to earn the bonus.

With a **fixed ratio reinforcement schedule**, there are a set number of responses that must occur before the behavior is rewarded. Carla sells glasses at an eyeglass store, and she earns a commission every time she sells a pair of glasses. She always tries to sell people more pairs of glasses, including prescription sunglasses or a backup pair, so she can increase her commission. She does not care if the person really needs the prescription sunglasses, Carla just wants her bonus. The quality of what Carla sells does not matter because her commission is not based on quality; it's only based on the number of pairs sold. This distinction in the quality of performance can help determine which reinforcement method is most appropriate for a particular situation. Fixed ratios are better suited to optimize the quantity of output, whereas a fixed interval, in which the reward is not quantity based, can lead to a higher quality of output.

In a **variable ratio reinforcement schedule**, the number of responses needed for a reward varies. This is the most powerful partial reinforcement schedule. An example of the variable ratio reinforcement schedule is gambling. Imagine that Sarah—generally a smart, thrifty woman—visits Las Vegas for the first time. She is not a gambler, but out of curiosity she puts a quarter into the slot machine, and then another, and another. Nothing happens. Two dollars in quarters later, her curiosity is fading, and she is just about to quit. But then, the machine lights up, bells go off, and Sarah gets 50 quarters back. That's more like it! Sarah gets back to inserting quarters with renewed interest, and a few minutes later she has used up all her gains and is \$10 in the hole. Now might be a sensible time to quit. And yet, she keeps putting money into the slot machine because she never knows when the next reinforcement is coming. She keeps thinking that with the next quarter she could win \$50, or \$100, or even more. Because the reinforcement schedule in most types of gambling has a variable ratio schedule, people keep trying and hoping that the next time they will win big. This is one of the reasons that gambling is so addictive—and so resistant to extinction.

TYPES OF REINFORCEMENT SCHEDULES

The two foundational forms of reinforcement schedules are referred to as continuous reinforcement and partial reinforcement.

CONTINUOUS REINFORCEMENT

In continuous reinforcement, the desired behavior is reinforced every single time it occurs.¹ This schedule is best used during the initial stages of learning to create a strong association between the behavior and response.

Imagine, for example, that you are trying to teach a dog to shake your hand. During the initial stages of learning, you would stick to a continuous reinforcement schedule to teach and establish the behavior. This might involve grabbing the dog's paw, shaking it, saying "shake," and then offering a reward each and every time you perform these steps. Eventually, the dog will start to perform the action on its own.

Continuous reinforcement schedules are most effective when trying to teach a new behavior. It denotes a pattern to which every narrowly-defined response is followed by a narrowly-defined consequence.

PARTIAL REINFORCEMENT

Once the response is firmly established, a continuous reinforcement schedule is usually switched to a partial reinforcement schedule.¹ In partial (or intermittent) reinforcement, the response is reinforced only part of the time. Learned behaviors are acquired more slowly with partial reinforcement, but the response is more resistant to extinction.

Think of the earlier example in which you were training a dog to shake and. While you initially used continuous reinforcement, reinforcing the behavior every time is simply unrealistic. In time, you would switch to a partial schedule to provide additional reinforcement once the behavior has been established or after considerable time has passed.

THERE ARE FOUR SCHEDULES OF PARTIAL REINFORCEMENT: FIXED-RATIO SCHEDULES

Fixed-ratio schedules are those in which a response is reinforced only after a specified number of responses. This schedule produces a high, steady rate of responding with only a brief pause after the delivery of the reinforcer. An example of a fixed-ratio schedule would be delivering a food pellet to a rat after it presses a bar five times.

VARIABLE-RATIO SCHEDULES

Variable-ratio schedules occur when a response is reinforced after an unpredictable number of responses. This schedule creates a high steady rate of responding. Gambling and lottery games are good examples of a reward based on a variable ratio schedule. In a lab setting, this might involve delivering food pellets to a rat after one bar press, again after four bar presses, and then again after two bar presses.

FIXED-INTERVAL SCHEDULES

Fixed-interval schedules are those where the first response is rewarded only after a specified amount of time has elapsed. This schedule causes high amounts of responding near the end of the interval but slower responding immediately after the delivery of the reinforcer. An example of this in a lab setting would be reinforcing a rat with a lab pellet for the first bar press after a 30-second interval has elapsed.

VARIABLE-INTERVAL SCHEDULES

Variable-interval schedules occur when a response is rewarded after an unpredictable amount of time has passed. This schedule produces a slow, steady rate of response.

An example of this would be delivering a food pellet to a rat after the first bar press following a one-minute interval; a second pellet for the first response following a five-minute interval; and a third pellet for the first response following a three-minute interval.

USING THE APPROPRIATE SCHEDULE

Deciding when to reinforce a behavior can depend on a number of factors. In cases where you are specifically trying to teach a new behavior, a continuous schedule is often a good choice. Once the behavior has been learned, switching to a partial schedule is often preferable.

In daily life, partial schedules of reinforcement occur much more frequently than do continuous ones. For example, imagine if you received a reward every time you showed up to work on time. Over time, instead of the reward being a positive reinforcement, the denial of the reward could be regarded as negative reinforcement.

Instead, rewards like these are usually doled out on a much less predictable partial reinforcement schedule. Not only are these much more realistic, but they also tend to produce higher response rates while being less susceptible to extinction.¹

Partial schedules reduce the risk of satiation once a behavior has been established. If a reward is given without end, the subject may stop performing the behavior if the reward is no longer wanted or needed.

For example, imagine that you are trying to teach a dog to sit. If you use food as a reward every time, the dog might stop performing once it is full. In such instances, something like praise or attention may be more effective in reinforcing an already-established behavior.

Behaviours by reinforcement

HIGHLIGHTS

- Developmental differences in acquiring and adapting behaviours by reinforcement were examined.
- Children and adults acquired simple new behaviours by feedback comparably.
- Children's performance was more disrupted than adults' when adapting behaviours.
- P3 ERP changes indicated children consolidated adapted behaviours less than adults.
- FRN ERP changes showed children relied more on feedback than adults in adaptation.

REINFORCEMENT LEARNING IN DEVELOPMENT

The ability to learn and modify behaviours based on the positive and negative outcomes of our actions is an important skill used throughout the lifespan. This skill, known as reinforcement learning (Holroyd and Coles, 2002, Thorndike and Bruce, 1911), may be particularly valuable in the first two decades of life, affording the naïve developing child an effective method of identifying advantageous behaviours and discerning when and how learned actions should be adapted for changing contexts. Indeed, impaired reinforcement learning has been implicated in the pathology of several neurodevelopmental disorders, including Tourette syndrome and ADHD (Marsh et al., 2004, Sagvolden et al., 2005), although the precise deficits in these conditions are unclear. A thorough understanding of the typical development of reinforcement learning may help clarify these deficits, but few studies have examined this aspect of cognitive development.

DIFFERENCES IN REINFORCEMENT LEARNING ACROSS TYPICAL DEVELOPMENT

Previous studies have consistently reported performance differences between children and adults in reinforcement learning. Younger children are less accurate when learning associations between stimuli and responses (S–R associations) by positive and negative feedback than older children and adults (Baldwin et al., 2012, Crone et al., 2004). Children learn at a slower rate than adults (Crone et al., 2004) and show particular difficulties when reinforcements are inconsistent. Specifically, performance differences between children and adults increase when feedback is probabilistic and does not correctly reinforce performance 100% of the time (Eppinger et al., 2009, Hämmerer et al., 2010).

Neural processes underlying these developmental differences have been examined using EEG, particularly the feedback-related negativity (FRN) event-related potential (ERP). The FRN is a negative deflection in the waveform at ~250 ms following feedback (Miltner et al., 1997). FRN

amplitude is larger following negative than positive feedback, and in some studies positive feedback elicits a positive-going deflection in the FRN time-range, the feedback-positivity (FP) (Holroyd et al., 2008). Evidence suggests the FRN/FP is generated by prefrontal cortical regions associated with performance monitoring, and reflects the processing of dopaminergic reinforcement learning signals triggered by feedback indicating behaviour was better or worse than expected (Bellebaum and Daum, 2008, Luque et al., 2012, Oliveira et al., 2007). FRN/FP amplitudes decrease during a reinforcement learning episode, likely reflecting decreased reliance on external feedback with increasing knowledge of the to-be-learned behaviours (Eppinger et al., 2009, Holroyd and Coles, 2002).

Children show less enhancement of the FRN for negative compared with positive feedback, suggesting children are poorer at differentiating between types of feedback than adults (Hämmerer et al., 2010). The authors suggest this may explain why learning is more disrupted in children when feedback is probabilistic and difficult to discriminate. FP amplitude decreases less across learning in children than adults and ERP correlates of monitoring errors in performance differentiate less between correct and error responses in children than in adults (Eppinger et al., 2009). Based on these differences between children and adults, Eppinger et al. (2009) suggested that children have weaker internal representations of whether a response is correct or erroneous, resulting in a greater reliance on feedback processing to achieve successful performance. In a recent review of this literature, Hämmerer and Eppinger (2012) proposed that increasing reinforcement learning ability reflects developing efficiency in processing feedback, using reinforcements effectively to guide goal-directed behaviour, and building internal representations of correct behaviours, as prefrontal cortical regions mature.

However, due to the scarcity of research in this area further studies are needed (Hämmerer and Eppinger, 2012). Furthermore, previous research has not addressed an important aspect of reinforcement learning, that is, the ability to alter and re-learn behaviours following changes in reinforcements. A robust finding in the executive function literature is that children are poorer than adults in switching to new behaviours when prompted by cues (Koolschijn et al., 2011). This suggests that children will have particular difficulty with learning when reinforcement contingencies change. Furthermore, the learning tasks used previously have been complicated, with multiple feedback conditions presented for different S-R associations within task blocks, creating considerable working memory demands (Crone et al., 2004, Eppinger et al., 2009, Hämmerer et al., 2010). Crone et al. (2004) and Eppinger et al. (2009) controlled for this problem by allocating children extra response time, but nevertheless the difficulty of these tasks may have enhanced developmental differences.

THE CURRENT STUDY

The study aims were firstly to further investigate neurocognitive differences in the typical development of reinforcement learning using a simple task designed to reduce the influence of age-related performance differences on ERP correlates of learning. The intention was to ensure all participants could perform the task adequately regardless of age so that any ERP differences are more likely to reflect differences in the recruitment of neural networks underlying task performance, rather than floor or ceiling effects in one age group. Secondly, to assess developmental differences in the ability to change and re-learn acquired behaviour in response to altered reinforcement contingencies we compared children aged 9–11 years with adults aged 21 years and over. Our aim was to establish whether children differ from adults in behavioural and

brain correlates of learning before they undergo the significant maturational changes that take place during adolescence. During EEG recording typically developing children and adults performed a task in which they learned four S–R associations by positive and negative feedback and then reversed the associations after an unexpected change in reinforcement contingencies. Changes in performance and feedback processing, indexed by the FRN, related to learning and reversal were examined across the task and between age groups. Additionally, changes in the P3 ERP, a positive deflection at ~300 ms post-stimulus, were examined. P3 amplitude increases with progressing reinforcement learning in adults, which is thought to reflect increasing consolidation of to-be-learned behaviours). The P3 may further elucidate neurocognitive differences between children and adults, for example, children may show weaker consolidation of associations than adults reflected by smaller P3 amplitude increases with learning. We predicted children would show smaller learning-related changes in performance and ERP amplitudes during the initial acquisition of S–R mappings than adults, reflecting poorer learning ability at this age. Further, we expected children to show greater disruptions to performance and greater reliance on feedback, indexed by smaller FRN amplitude changes, when the reversal occurred.

• **METHOD**

Participants

Fourteen 9–11 year olds (12 male, mean age: 10.2 years) and 15 adults (5 male, mean age: 25.5 years) were recruited from local primary schools and the University of Nottingham, UK to take part in this study. Participants were typically developing with no known neurological or psychiatric problems which may have affected brain function, right-handed (determined by the dominant hand for writing) and had normal or corrected-to-normal vision. Participants were tested in accordance with procedures approved by the University of Nottingham Medical School Ethics Committee and/or the East Midlands NHS Research Ethics Committee. Monetary reimbursement (£10) was provided for taking part.

REINFORCEMENT LEARNING TASK AND TESTING PROCEDURE

The reinforcement learning task required participants to learn by trial-and-error, using deterministic (always valid) performance feedback, to associate a set of two visual stimuli with a right hand button-press and another two stimuli with a left hand button-press. Three blocks of trials were presented for participants to learn the stimulus–response (S–R) associations. The S–R mappings reversed unexpectedly in a fourth block, requiring participants to re-learn the correct response for each stimulus. In a fifth block, the mappings remained reversed. Every block contained 48 trials, with each stimulus presented 12 times in random order in each block. Particular S–R associations were counterbalanced across participants. Stimuli were four cartoon characters from a popular animated film, presented in colour and surrounded by a rectangular 3 mm thick green frame. Stimuli measured 60 mm × 57 mm including the frame. Circular yellow happy-face images and blue sad-face images (both 60 mm in diameter) were used as positive and negative feedback. The words 'Too slow!' (10 mm × 90 mm) were displayed in green for late responses.

ACQUISITION OF SIMPLE NEW BEHAVIOURS BY REINFORCEMENT

Children and adults showed equivalent increases in accuracy and P3 amplitude and decreases in FRN amplitude as they learned the S–R associations. Therefore, in contrast to previous research children in this study acquired and consolidated new behaviours and gradually decreased their use of external feedback at the same rate as adults. Accuracy significantly correlated with FRN amplitude during the first task block in children, indicating that feedback processing was related to the correct production of S–R associations in children in this study. This extends previous

research by indicating that feedback processing and guidance of goal-directed behaviour by reinforcement information is not deficient in children compared with adults, as has previously been proposed.

Our findings indicate that when reinforcement learning is non-probabilistic the neural mechanisms underlying this basic form of learning work as efficiently in children as in adults. Problems with acquiring new behaviours may only appear in children when reinforcement learning becomes more complicated, for instance when reinforcements are unclear, for example probabilistic, and demands on other maturing cognitive functions such as working memory or executive function are high. As such, our findings highlight the importance of ensuring task difficulty is appropriate for children in developmental investigations of reinforcement learning.

4.2. DEVELOPMENTAL DIFFERENCES IN ALTERING LEARNED BEHAVIOURS BY REINFORCEMENT

Performance was significantly more impaired in children than adults when reinforcements changed and the reversal of S–R associations was required in block 4 of the task. Nevertheless, following the reversal children improved their performance at the same rate as adults (task block 5). These findings suggest that children have specific performance difficulties when unexpected changes in reinforcements occur, but are eventually able to re-acquire simple behaviours in a similar manner to adults. Analysis of the P3 and FRN revealed further developmental differences in neurocognitive processes underlying performance.

The magnitude of P3 amplitude changes during learning can be considered to index the strength of internal representation of correct S–R associations in working memory (Barceló et al., 2000, Rose et al., 2001). P3 amplitude changes were significantly greater in adults than children, decreasing more during reversal of associations and increasing more with re-acquisition of reversed mappings, indicating that internal representations of the S–R associations underwent less adaptation and re-consolidation in children than adults. In contrast, FRN amplitude changes were greatest in children, decreasing more with re-learning of the associations in block 5 than in adults. Indeed, FRN amplitude showed little variation after the first task block in adults while a prominent increase with reversal and decrease with re-acquisition was observed in children, indicating that feedback processing varied more with reversal and re-learning in children than adults. Previous authors have emphasised that difficulties with feedback processing, resulting from immature performance monitoring functions of the developing prefrontal cortex, underlie children's poorer reinforcement learning performance (Hämmerer and Eppinger, 2012, Hämmerer et al., 2010). It has been suggested that children are less successful than adults in integrating feedback information with motor action plans, or that children use feedback in a less goal-directed manner than adults (Hämmerer and Eppinger, 2012, Hämmerer et al., 2010). In contrast to the latter proposal, our findings suggest that children do use feedback to drive goal-directed learning behaviour. Changes in FRN amplitude were associated with changes in performance accuracy in children when most re-learning was occurring (block 4). Furthermore, FRN changes were largest in children, indicating children were using feedback more than adults to guide behaviour. However, as children performed more poorly than adults, children may have had greater difficulty in integrating feedback information to consolidate S–R associations and so produce the correct behaviours, consistent with other work using a probabilistic learning task (Van Duijvenvoorde et al., 2013).

Errors were not sufficiently numerous to allow analysis of the ERN in this study. However, the profile of P3 and FRN effects here are similar to the ERN and FP findings reported by Eppinger et

al.(2009), and support the proposal put forward by those authors that children build weaker internal representations of to-be-learned behaviours and engage in greater processing of external feedback than adults when alterations in reinforcement learning are required. This may be due to interference arising from the extra cognitive processing demands of reversing the S–R associations, such as the requirement to suppress the previously correct behaviours and produce new responses that conflict with the original S–R associations. A wealth of evidence demonstrates that such executive functions are poorer in children than adults (Johnstone et al., 2005, Ladouceur et al., 2007, Rueda et al., 2004). Therefore, it may be that these additional processing requirements reduce children's cognitive capacity for learning, decreasing the efficiency of the processes of consolidating the reversed S–R associations and integrating new feedback information with behaviour plans. Children may exercise greater feedback processing to compensate for these difficulties. Alternatively, the enhanced FRN in children may reflect a greater affective or motivational response to correct responses during the more challenging phases of the task. Amplitude of the FRN to negative feedback has been related to individual differences in punishment sensitivity in adolescence and adults (Santesso et al., 2011) and may reflect evaluation of good versus bad outcomes based on motivational as well as cognitive goals (Hajcak et al., 2006). It is possible therefore that the children in the present study invoked this evaluative process more strongly than adults having encountered greater difficulty during the reversal phase of the task. However, the present task was not designed with this question in mind and further research is needed to investigate the role of the FRN in children in this age range.

Another possible explanation for our findings is that children learn in a different manner from adults. Research in adults has shown that providing information about reward likelihood enhances the reinforcement learning process. For example, Li et al. (2011) and Walsh and Anderson (2011) compared adults' performance on a probabilistic S–R learning task when no information about reinforcement probabilities was given and adults were required to learn the S–R associations solely by feedback, with a separate condition in which participants were instructed as to the probability that each S–R pair would be followed by valid feedback, for example that one S–R association would be correctly reinforced on 30% of trials. Adults' performance increased gradually in the no-instruction learning condition, but began and remained at asymptote in the instruction condition. The enhancing effect of instruction on learning is suggested to reflect the top-down influence of rules for learning represented in prefrontal regions on striatal reinforcement learning mechanisms (Li et al., 2011).

In the current study, a rule for how the S–R associations should be re-learned would have been acquired easily after only a few trials in block 4 based on knowledge of what the original S–R mappings were and identifying that the mappings simply had to be reversed. If implemented, this rule would facilitate faster re-learning of the associations. Adults verbally reported that they realised the S–R combinations in block 4 were simply the opposite of those in blocks 1–3. Adults' rapid increase in consolidation of the new S–R associations, improvement in performance and minimal variation of the FRN suggests that they used this inferred rule to guide re-learning rather than relied on external feedback. Children's slower consolidation of reversed S–R associations, more disrupted performance, and greater feedback processing suggests that they were relying on external reinforcement information rather than the internally derived rule for re-learning that adults appeared to employ. Therefore, a possible explanation for the developmental difference in performance and neurocognitive processing in the reversal phase is that unlike adults, children do not infer and use rules for learning, and instead rely on slower feedback-based learning. It is unclear whether this reflects an inability of children to infer learning rules and use them to drive performance due to

under-developed prefrontal regions, or a strategic preference for experience-based learning in children. Future studies comparing instruction-based and experience-based learning in children and adults would be useful in clarifying this issue.

One final observation to discuss is the prolonged negativity following the FRN observed in the feedback-locked waveforms in all learning blocks in children but not in adults. A detailed analysis of this component was beyond the scope of this article, but would be worthy of future research. It is likely that this second negative peak in the children reflects a second oscillation of the same ongoing physiological process (feedback-processing), and may occur due to additional or more effortful processing of the feedback information in children to compensate for their greater difficulty in learning the S-R associations. Alternatively, this negativity might index different learning strategies used in children compared with adults. A recent study comparing feedback-locked potentials between groups of adults using different learning strategies to acquire new behaviours reported strategy-related differences in the morphology of positive feedback components.

BEHAVIOUR MODIFICATION AND ITS APPLICATIONS OF REINFORCEMENT:

- **Agent:** It is an assumed entity which performs actions in an environment to gain some reward.
- **Environment (e):** A scenario that an agent has to face.
- **Reward (R):** An immediate return given to an agent when he or she performs specific action or task.
- **State (s):** State refers to the current situation returned by the environment.
- **Policy (π):** It is a strategy which applies by the agent to decide the next action based on the current state.
- **Value (V):** It is expected long-term return with discount, as compared to the short-term reward.
- **Value Function:** It specifies the value of a state that is the total amount of reward. It is an agent which should be expected beginning from that state.
- **Model of the environment:** This mimics the behavior of the environment. It helps you to make inferences to be made and also determine how the environment will behave.
- **Model based methods:** It is a method for solving reinforcement learning problems which use model-based methods.
- **Q value or action value (Q):** Q value is quite similar to value. The only difference between the two is that it takes an additional parameter as a current action.

REINFORCEMENT LEARNING WORKS

Let's see some simple example which helps you to illustrate the reinforcement learning mechanism.

Consider the scenario of teaching new tricks to your cat

- As cat doesn't understand English or any other human language, we can't tell her directly what to do. Instead, we follow a different strategy.
- We emulate a situation, and the cat tries to respond in many different ways. If the cat's response is the desired way, we will give her fish.
- Now whenever the cat is exposed to the same situation, the cat executes a similar action with even more enthusiastically in expectation of getting more reward (food).
- That's like learning that cat gets from "what to do" from positive experiences.
- At the same time, the cat also learns what not to do when faced with negative experiences.

MODEL-BASED:

In this Reinforcement Learning method, you need to create a virtual model for each environment. The agent learns to perform in that specific environment.

CHARACTERISTICS OF REINFORCEMENT LEARNING

Here are important characteristics of reinforcement learning

- There is no supervisor, only a real number or reward signal
- Sequential decision making
- Time plays a crucial role in Reinforcement problems
- Feedback is always delayed, not instantaneous
- Agent's actions determine the subsequent data it receives

TYPES OF REINFORCEMENT LEARNING

Two kinds of reinforcement learning methods are:

POSITIVE:

It is defined as an event, that occurs because of specific behavior. It increases the strength and the frequency of the behavior and impacts positively on the action taken by the agent.

This type of Reinforcement helps you to maximize performance and sustain change for a more extended period. However, too much Reinforcement may lead to over-optimization of state, which can affect the results.

NEGATIVE:

Negative Reinforcement is defined as strengthening of behavior that occurs because of a negative condition which should have stopped or avoided. It helps you to define the minimum stand of performance. However, the drawback of this method is that it provides enough to meet up the minimum behavior.

LEARNING MODELS OF REINFORCEMENT

There are two important learning models in reinforcement learning: Markov Decision Process and Q learning Markov Decision Process

The following parameters are used to get a solution:

- Set of actions- A
- Set of states -S
- Reward- R
- Policy- π
- Value- V

The mathematical approach for mapping a solution in reinforcement Learning is recon as a Markov Decision Process or (MDP).

Reinforcement Learning vs. Supervised Learning

Parameters	Reinforcement Learning
Decision style	reinforcement learning helps you to take your decisions sequentially.
Works on	Works on interacting with the environment.

Dependency on decision	In RL method learning decision is dependent. Therefore, you should give labels to all the dependent decisions.

Best suited Supports and work better in AI, where human interaction is prevalent. Example Chess game

APPLICATIONS OF REINFORCEMENT LEARNING

Here are applications of Reinforcement Learning:

- Robotics for industrial automation.
- Business strategy planning
- Machine learning and data processing
- It helps you to create training systems that provide custom instruction students.
- and materials according to the requirement of
- Aircraft control and robot motion control

WHY USE REINFORCEMENT LEARNING?

Here are prime reasons for using Reinforcement Learning:

- It helps you to find which situation needs an action
- Helps you to discover which action yields the highest reward over the longer period.
- Reinforcement Learning also provides the learning agent with a reward function.
- It also allows it to figure out the best method for obtaining larger rewards.

WHEN NOT TO USE REINFORCEMENT LEARNING?

You can't apply reinforcement learning model in all the situation. Here are some conditions when you should not use reinforcement learning model.

- When you have enough data to solve the problem with a supervised learning method
- You need to remember that Reinforcement Learning is computing-heavy and time-consuming, in particular when the action space is large.

CHALLENGES OF REINFORCEMENT LEARNING

Here are the major challenges you will face while doing Reinforcement learning:

- Feature/reward design which should be very involved
- Parameters may affect the speed of learning.
- Realistic environments can have partial observability.
- Too much Reinforcement may lead to an overload of states which can diminish the results.
- Realistic environments can be non-stationary.

SUMMARY:

- Reinforcement Learning is a Machine Learning method
- Helps you to discover which action yields the highest reward over the longer period.
- Three methods for reinforcement learning are 1) Value-based 2) Policy-based and Model based

learning.

- Agent, State, Reward, Environment, Value function Model of the environment, Model based methods, are some important terms using in RL learning method
- The example of reinforcement learning is your cat is an agent that is exposed to the environment.
- The biggest characteristic of this method is that there is no supervisor, only a real number or reward signal
- Two types of reinforcement learning are 1) Positive 2) Negative
- Two widely used learning model are 1) Markov Decision Process 2) Q learning
- Reinforcement Learning method works on interacting with the environment, whereas the supervised learning method works on given sample data or example.
- Application or reinforcement learning methods are: Robotics for industrial automation and business strategy planning
- You should not use this method when you have enough data to solve the problem
- The biggest challenge of this method is that parameters may affect the speed of learning

COGNITIVE APPROACHES IN LEARNING: LATENT LEARNING, OBSERVATIONAL LEARNING

Cognitive approaches to learning are concerned with how information is processed by learners. Cognitive theories view students as active in “an internal learning process that involves memory, thinking, reflection, abstraction, motivation, and meta-cognition” (Ally, 2008). Students organize old knowledge, scripts, and schema, find relationships, and link new information to old (Cognitive Theories of Learning, n.d.). Ertmer and Newby (1993) note that “learning is a change in the state of knowledge, and is a mental activity where an active learner internally codes and structures knowledge” (p. 58). They believe that “the real focus of the cognitive approach is on changing the learner by encouraging him/her to use appropriate learning strategies” (Ertmer & Newby, 1993, p. 59).

Cognition refers to mental activity including thinking, remembering, learning and using language. When we apply a cognitive approach to learning and teaching, we focus on the understanding of information and concepts. If we are able to understand the connections between concepts, break down information and rebuild with logical connections, then our retention of material and understanding will increase.

When we are aware of these mental actions, monitor them and control our learning processes it is called metacognition

CLASSIFYING COGNITIVIST THEORIES

Behaviorist, cognitivist, and constructivist ideas and principles overlap in many areas (Ally, 2008). Therefore, classifying theories is challenging; some theories fit in more than one classification and different sources classify the theories in different ways. For example, in some sources Jerome Bruner’s Discovery Learning Theory is classified as cognitive (Using the Web for Learning: Background, n.d.) and not developmental (Cognitive Theories of Learning, n.d.). In other sources, Bruner is deemed developmental (Driscoll, 2005/2007). In still other sources, Bruner is considered constructivist (Learning Theories Knowledgebase, 2009). In addition, Albert Bandura is often classified as a behaviorist; however, Bandura, himself, claimed that he was never a behaviorist (From Behaviorism to Social Cognition??, n.d.).

CLASSIFICATIONS

Course materials in ETEC 512 classified theorists as follows:

COGNITIVE

- Social Cognitive Theory (Social Learning Theory) by Bandura
- Bandura focused on observational learning and self- efficacy (Zeldin, Britner, & Pajares, 2008).
- Information Processing Theories by various theorists
- The computer was seen as a metaphor for the mind(Schunk 2004/2007a).
- Information was input and the mind processed the information, creating output (Information Processing,n.d.).
- Assimilation Theory (Meaningful Learning) by Ausubel
- Ausubel focused on reception learning; he noted that the learner was active and thus he differentiated betweenrote and meaningful learning (Novak, 1998/2007).
- Ausubel stressed the importance of the advance organizer.

DEVELOPMENTAL

- Genetic Epistemology by Piaget
- Piaget believed that experience with the environmentaffected knowledge acquisition.
- His four stages of development detail how humansdevelop cognitively.
- Sociocultural Theory by Vygotsky
- Vygotsky's Zone of Proximal Development (ZPD) details the difference between what a learner can do independently and what the learner can do with help; independent learning may not take place, but scaffolded learning can.
- Discovery Learning by Bruner
- Bruner describes representational stages, andemphasizes exploring the environment.

CONCEPT MAP OF COGNITIVE AND DEVELOPMENTAL THEORIES

Using the computer metaphor of input and output, this concept map of the theories organizes the main principles. The component referring to an individual is shown on the left hand side of each theory diagram, while the social contribution is shown on the right hand side.

COMPONENTS OF COGNITIVE LEARNING APPROACHES

Ertmer and Newby (1993) describe the commonalities that exist between the many different cognitive theories:

HOW LEARNING OCCURS

- mental activity: internal coding and structuring by the learner
- change occurs in state of knowledge

FACTORS INFLUENCING LEARNING

- environmental conditions
- practice with corrective feedback
- processes of mental planning, goal-setting, and organizationalstrategies
- way learners attend to, code, transform, rehearse, store andretrieve information
- learners' thoughts, beliefs, attitudes, and values

ROLE OF MEMORY

- information is stored in an organized, meaningful manner; need to relate new information to prior knowledge

TRANSFER

- function of how information is stored in memory
- occurs when learner understands how to apply knowledge in different contexts

TYPES OF LEARNING BEST EXPLAINED

- complex forms of learning (reasoning, problem-solving, information-processing)
- communicate/transfer knowledge in an efficient effective manner: simplification, standardization (knowledge analyzed, decomposed, simplified into basic building blocks; irrelevant information eliminated)

INSTRUCTIONAL DESIGN

- feedback to help create accurate mental representations and connections
- learner and task analysis: determine learner's predisposition to learning; look at existing mental structures to design instruction so it can be readily assimilated

MAJOR TASKS OF TEACHER/DESIGNER

- understand that learners have different backgrounds/experiences which can impact learning outcomes
- determine the most effective manner in which to organize and structure new information to work with these backgrounds/experiences
- arrange practice with feedback so that the new information is effectively and efficiently assimilated and /or accommodated with the learner's cognitive structure

RELEVANCE OF COGNITIVIST APPROACHES

Cognitivist approaches to learning are relevant to today's educators. Pratt (n.d.) cautions "while I do not argue with the basic tenets of constructivism, I do resist the rush to adopt any single, dominant view of learning or teaching" (p. 1). Hung (2001) advises that "instead of regarding the different learning theories as discordant, we rather adopt the instructional approaches derived from each of the learning theories and situate them in the appropriate instructional context based on the learning objectives" (Conclusion). Ertmer and Newby (1993) suggest that the best theoretical approach depends on the learner's experience with the knowledge, and the level of cognitive processing required by the task; behaviourist approaches can allow the learner to master content (know what), cognitivist approaches are better for problem-solving with facts and rules applied in unfamiliar situations (know how), and constructivist approaches are better for ill-defined problems (reflection-in-action).

DISTRIBUTED LEARNING

In a Distributed Learning (DL) program, parents are very involved in helping their children learn. The parents are not trained teachers, and have difficulty with using pedagogy to inform their practices at home. The parents find value in the efficient delivery method inherent in cognitivist approaches. DL students in programs that have social/interactive components (face-to-face classes or online discussions) can use the knowledge and skills learned from a cognitivist approach, from content to critical thinking and problem-solving strategies, to engage in knowledge construction. Pratt (n.d.) states "that teachers are 'pedagogical engineers' with the responsibility to plan a lesson(s) with the most relevant instructional approaches and technologies at his or her disposal" (Conclusion). In a DL program, it is the teacher's responsibility to understand the needs of parents and learners; this makes it even more important that teachers understand and choose the most relevant approach.

LATENT LEARNING

Strict behaviorists like Watson and Skinner focused exclusively on studying behavior rather than cognition (such as thoughts and expectations). In fact, Skinner was such a staunch believer that cognition didn't matter that his ideas were considered **radical behaviorism**. Skinner considered the mind a "black box"—something completely unknowable—and, therefore, something not to be studied. However, another behaviorist, Edward C. Tolman, had a different opinion. Tolman's experiments with rats demonstrated that organisms can learn even if they do not receive immediate reinforcement (Tolman & Honzik, 1930; Tolman, Ritchie, & Kalish, 1946). This finding was in conflict with the prevailing idea at the time that reinforcement must be immediate in order for learning to occur, thus suggesting a cognitive aspect to learning.

Latent learning is a form of learning that is not immediately expressed in an overt response. It occurs without any obvious reinforcement of the behavior or associations that are learned.

Latent learning is not readily apparent to the researcher because it is not shown behaviorally until there is sufficient motivation. This type of learning broke the constraints of behaviorism, which stated that processes must be directly observable and that learning was the direct consequence of conditioning to stimuli.

In the experiments, Tolman placed hungry rats in a maze with no reward for finding their way through it. He also studied a comparison group that was rewarded with food at the end of the maze. As the unreinforced rats explored the maze, they developed a **cognitive map**: a mental picture of the layout of the maze (Figure 1).

After 10 sessions in the maze without reinforcement, food was placed in a goal box at the end of the maze. As soon as the rats became aware of the food, they were able to find their way through the maze quickly, just as quickly as the comparison group, which had been rewarded with food all along. This is known as latent learning: learning that occurs but is not observable in behavior until there is a reason to demonstrate it.

Latent learning also occurs in humans. Children may learn by watching the actions of their parents but only demonstrate it at a later date, when the learned material is needed. For example, suppose that Ravi's dad drives him to school every day. In this way, Ravi learns the route from his house to his school, but he's never driven there himself, so he has not had a chance to demonstrate that he's learned the way. One morning Ravi's dad has to leave early for a meeting, so he can't drive Ravi to school. Instead, Ravi follows the same route on his bike that his dad would have taken in the car. This demonstrates latent learning. Ravi had learned the route to school, but had no need to demonstrate this knowledge earlier.

EVERYDAY CONNECTION: THIS PLACE IS LIKE A MAZE

Have you ever gotten lost in a building and couldn't find your way back out? While that can be frustrating, you're not alone. At one time or another we've all gotten lost in places like a museum, hospital, or university library. Whenever we go someplace new, we build a mental representation—or cognitive map—of the location, as Tolman's rats built a cognitive map of their maze. However, some buildings are confusing because they include many areas that look alike or have short lines of sight. Because of this, it's often difficult to predict what's around a corner or decide whether to turn left or right to get out of a building.

Psychologist Laura Carlson (2010) suggests that what we place in our cognitive map can impact our success in navigating through the environment. She suggests that paying attention to specific features upon entering a building, such as a picture on the wall, a fountain, a statue, or an escalator, adds information to our cognitive map that can be used later to help find our way out of the building.

OBSERVATIONAL LEARNING

Observational learning, method of learning that consists of observing and modeling another individual's behavior, attitudes, or emotional expressions. Although it is commonly believed that the observer will copy the model, American psychologist Albert Bandura stressed that individuals may simply learn from the behavior rather than imitate it. Observational learning is a major component of Bandura's social learning theory. He also emphasized that four conditions were necessary in any form of observing and modeling behavior: attention, retention, reproduction, and motivation.

CONDITIONS FOR OBSERVATIONAL LEARNING ATTENTION

If an organism is going to learn anything from a model, he or she must be paying attention to it and the behavior it exhibits. Many conditions can affect the observer's attention. For instance, if the observer is sleepy, ill, or distracted, he or she will be less likely to learn the modeled behavior and imitate it at a later date. In addition, the characteristics of the model have an influence on the observer's attention. Bandura and others have shown that humans pay more attention to models that are attractive, similar to them, or prestigious and are rewarded for their behaviors. This explains the appeal that athletes have on the behavior of young children and that successful adults have on college students. Unfortunately, this aspect of modeling can also be used in detrimental ways. For example, if young children witness gang members gaining status or money, they may imitate those behaviors in an effort to gain similar rewards.

RETENTION

The second requirement of observational learning is being able to remember the behavior that was witnessed. If the human or animal does not remember the behavior, there is a less than probable chance that they will imitate it.

REPRODUCTION

This requisite of behavior concerns the physical and mental ability of the individual to copy the behavior he or she observed. For instance, a young child may observe a college basketball player dunk a ball. Later, when the child has a basketball, he or she may attempt to dunk a ball just like the college player. However, the young child is not nearly as physically developed as the older college player and, no matter how many times he or she tries, will not be able to reach the basket to dunk the ball.

An older child or an adult might be able to dunk the ball but likely only after quite a bit of practice. Similarly, a young colt observes another horse in the herd jump over the creek while running in the pasture. After observing the model's jumping behavior, the colt attempts to do the same only to land in the middle of the creek. He simply was not big enough or did not have long enough legs to clear the water. He could, however, after physical growth and some practice, eventually be able to replicate the other horse's jump.

MOTIVATION

Perhaps the most important aspect of observational learning involves motivation. If the human or animal does not have a reason for imitating the behavior, then no amount of attention, retention, or reproduction will overcome the lack of motivation. Bandura identified several motivating factors for imitation. These include knowing that the model was previously reinforced for the behavior, being offered an incentive to perform, or observing the model receiving reinforcement for the behavior. These factors can also be negative motivations. For instance, if the observer knew that the model was punished for the behavior, was threatened for exhibiting the behavior, or observed the model being punished for the behavior, then the probability of mimicking the behavior is less.

APPLICATIONS OF OBSERVATIONAL LEARNING

Modeling has been used successfully in many therapeutic conditions. Many therapists have used forms of modeling to assist their patients to overcome phobias. For example, adults with claustrophobia may observe a model in a video as they move closer and closer to an enclosed area before entering it. Once the model reaches the enclosed area, for instance a closet, he or she will open the door, enter it, and then close the door. The observer will be taught relaxation techniques and be told to practice them anytime he or she becomes anxious while watching the film. The end result is to continue observing the model until the person can enter the closet himself or herself. Bandura's findings in the Bobo doll experiments have greatly influenced children's television programming. Bandura filmed his students physically attacking the Bobo doll, an inflatable doll with a rounded bottom that pops back up when knocked down. A student was placed in the room with the Bobo doll. The student punched the doll, yelled "sockeroo" at it, kicked it, hit it with hammers, and sat on it. Bandura then showed this film to young children. Their behavior was taped when in the room with the doll. The children imitated the behaviors of the student and at times even became more aggressive toward the doll than what they had observed. Another group of young children observed a student being nice to the doll. Ironically, this group of children did not imitate the positive interaction of the model. Bandura conducted a large number of varied scenarios of this study and found similar events even when the doll was a live clown. These findings have prompted many parents to monitor the television shows their children watch and the friends or peers with which they associate. Unfortunately, the parental saying "Do as I say, not as I do" does not hold true for children. Children are more likely to imitate the behaviors versus the instructions of their parents. One of the most famous instances of observational learning in animals involves the blue jay, a small European bird. During the 1920s and through the 1940s, many people reported that the cream from the top of the milk being delivered to their homes was being stolen. The cream-stealing incidents spread all over Great Britain. After much speculation about the missing cream, it was discovered that the blue tit was the culprit. Specifically, one bird had learned to peck through the foil top of the milk container and suck the cream out of the bottle. It did not take long before other blue tit birds imitated the behavior and spread it through the country.

VERBAL LEARNING

Verbal learning is the process of acquiring, retaining and recalling of verbal material. At its most elementary level, it can be defined as a process of building associations between a stimulus and a response, with both of them being verbal. At a broader level, verbal learning includes the processes of organizing the stimulus material by the learner and the related changes in the learner's behavior. At different stages of the development of the verbal learning studies, a variety of aspects of this phenomenon were highlighted. For example, German psychologist Hermann Ebbinghaus (1850-1909) in his book *On Memory* (1885), focused on the processes of association building and recall, which shaped his experiments with verbal material. Ebbinghaus's work, albeit not dealing explicitly with verbal learning, is considered as the first seminal work in the field, due to the material and the

methods used.

Verbal learning can be based on different processes and can be classified in several types. The first process is serial verbal learning. People engage in it when they learn a list of verbal items (for example, words or syllables) while maintaining the order of the items. Psychologists test this type of learning by asking subjects to read a list of verbal stimuli and then reproduce this list while keeping the original order of the items. Such experiments have been widely used in tests of short- and long-term memory.

A useful strategy that can be used while remembering such lists of words is to build associations between them. Thus, the first word "anticipates" the second, and, analogically, every word points to the one after it. Ebbinghaus called this learning strategy the serial anticipation method. Studies of this type of learning have also discovered the serial position effect, which says that different parts of the list are learned with different difficulty. Usually, the first few items are the easiest to learn, then come those at the end of the list. The hardest to learn are the items just after the middle.

Another type of verbal learning is referred to paired associate learning. It happens when people read pairs of words, or other verbal stimuli, then get to see just one item of a pair and have to say what the other is. This type of learning is largely used in education, especially in learning foreign languages. Pupils learn vocabularies as pairs of known English words and words from another language, building associations between the items of a pair. Then, when presented with a foreign word (stimulus), the pupil has to name the corresponding English word (response).

Free verbal learning is a type of learning, which people use when they learn lists of items regardless of their order. A task used to test this type of learning is free recall. The subject is asked to recall as many items from a list as possible, regardless of their sequence. Such tests are often used to establish organizational patterns of learning and memory. For example, the subject may use a clustering strategy - grouping items according to their similarity or the number of letters in them. Another kind of verbal learning is verbal discrimination (or recognition) learning. It is studied by a task which requires of the subject, after reading a list of items, to read another one and to say which items of the second list were present in the first. Verbal learning theorists use different materials in their tests. Ebbinghaus used nonsense syllables - syllables of the type consonant-vowel-consonant, such as GOC, TER, and BIV. He argued that these stimuli were easily controlled and thus had an advantage for being used in the studies of memory compared to meaningful words.

In 1932, British psychologist Frederic Bartlett (1886-1969) challenged Ebbinghaus's view that nonsense syllables were easily controlled and that they eliminated meaning as a factor in learning. Another influential perspective and perhaps the most important contribution to this field was *The Psychology of Human Learning: An Introduction* (1942) by John McGeoch (1897-1942), a book which summarized many of the trends in verbal learning.

In the 1950s, the verbal learning studies focused on verbal behavior - the characteristics of language and its use. In the 1960s through to the 1980s, psycholinguists developed models of word acquisition, verbal information processing and lexicon building. Examples of such models are the logogen model of John Morton (1969), which was considered to be an important theory, along with the PDP (parallel distributed processing) model of Mark Seidenberg and James Lloyd McClelland (1989).

DISCRIMINATION LEARNING

Learning Set and Learning by Exclusion

Discrimination learning can be generalized. The point is illustrated by experiments with monkeys on learning set. In the typical procedure, a monkey is presented with two objects; under one is a piece of food. When it learns the discrimination, two new objects are presented, and so on. Learning proceeds more rapidly after each problem until it learns new discriminations in a single trial. Learning set has also been demonstrated in other species and with other tasks.

Learning set is evident in a word-learning discrimination called learning by exclusion. In typical experiments employing nonverbal humans with mental retardation, subjects are first taught names for several foods. Then a new food is placed among foods with known names. Without any further training or prompts, subjects are asked to point to the new food that is given a never before heard name. Experienced subjects correctly select the novel food on the first test, and in subsequent tests with that food and new foods they demonstrate retention of the new name. These experiments show that after learning several names, individuals learn the contingency that exists between new names and new objects.

Discrimination Learning

Discrimination learning can be used as a part of training for more difficult tasks, including the judgement bias tasks and Iowa gambling task described earlier in the chapter. It can, however, also be used as a task in and of itself, to determine the ability of animals to discriminate between two stimuli and the capacity of animals to learn and perform tasks based on discrimination in different modalities.

Visual discrimination is frequently used in discrimination learning in various species. This can entail the use of lights, including discrimination between light color, intensity, or frequency of flashing lights. Visual stimuli can also include the use of pictures or patterns. Pigs have visual acuity which is inferior to humans, sheep, and cattle (Entsu et al., 1992; Tanaka et al., 1995; Zonderland et al., 2008) but which should, in theory, be quite sufficient for learning visual discriminations. In practice, however, discrimination based on visual stimuli in pigs has proven quite difficult, requiring lengthy training to show operant responses to distinct 2D shapes (Gielsing et al., 2012a; Graf, 1976; Haagensen et al., 2013). Discrimination of conspecifics based on photographs, which has been demonstrated in domestic sheep (Ferreira et al., 2004) and cows (Coulon et al., 2009) did not seem to be possible in pigs (Gielsing et al., 2012a).

Discrimination tasks based on auditory stimuli have been more successful, with pigs showing distinct operant responses to auditory stimuli of different frequencies (Murphy et al., 2013a). Other modalities, such as odor cues or tactile cues, have yet to be tested in pigs. Given their strong olfactory and tactile abilities (the snout is particularly sensitive), this may be an interesting avenue to explore to improve discrimination learning.

Neural Basis

The different forms of discrimination learning and reversal tasks seem to have distinct neural bases. Rapid acquisition of object discrimination problems seems to involve the inferotemporal cortex and ventral prefrontal cortex, as well as the mediodorsal thalamus (Gaffan and Murray, 1990; Gaffan et al., 1993; Baxter and Murray, 2000). The entorhinal and perirhinal cortices seem to be required for rapid learning of visual discrimination problems only to the extent that these cortical areas are involved in identification of the stimuli to be discriminated (see discussion in Baxter et al.,

1999). Other medial temporal lobe structures may be involved in retention of these rapidly learned discrimination problems (Zola-Morgan et al., 1994; Alvarez et al., 1995). In contrast, slow learning of object discrimination problems (e.g., in the "24-hr ITI" task) is independent of limbic structures (amygdala and hippocampus) but does require inferior temporal cortical area TE (Phillips et al., 1988) and again the entorhinal and perirhinal cortices only to the extent that object identification is taxed (Buckley and Gaffan, 1997; Thornton et al., 1998); as well as the ventral and orbital frontal cortices (Murray and Wise, 1997) and the tail of the caudate nucleus (Wang et al., 1990). The commonality between cortical systems required for learning of visual discrimination problems and visual recognition memory is notable (see Section II,B). Interestingly, individual monkeys who are impaired on DNMS performance also appear to demonstrate an impairment in object discrimination learning (Rapp, 1993), suggesting a common neural substrate for these deficits, likely inferior temporal-prefrontal connections (see Section II,B).

Spatial discrimination learning appears to involve hippocampal formation and dorsolateral prefrontal cortex. Monkeys with dorsolateral prefrontal cortex lesions are markedly impaired on acquisition of a spatial discrimination problem (Pohl, 1973), as are monkeys with aspiration lesions of the hippocampus that include the overlying parahippocampal cortex (Jones and Mishkin, 1972). The contribution of the hippocampus proper to spatial discrimination learning is unclear, as monkeys with neurotoxic hippocampal lesions (sparing the parahippocampal cortex) are not impaired on this particular spatial discrimination learning task (Murray et al., 1998).

Reversal learning appears to recruit additional neural systems. Lesions that impair the initial discrimination also produce impairment in subsequent reversals of that discrimination. However, lesions of the orbitofrontal cortex, which produce no impairment in initial acquisition of a spatial discrimination, produce a marked impairment in reversal of that discrimination (Jones and Mishkin, 1972). Similarly, rhinal cortex lesions, which have little effect on object discriminations, produce an impairment in subsequent reversals of that discrimination (Murray et al., 1998).

Lesions restricted to the hippocampus also appear to produce an impairment in object reversals, milder than that produced by rhinal cortex lesions (Mahut, 1971; Murray et al., 1998). Of note is the pattern of errors made during reversal learning: Jones and Mishkin (1972) analyzed errors in reversal learning based on whether the monkey was performing below chance (stage 1), at chance (stage 2), or above chance but not yet at criterion (stage 3).

Damage to the orbitofrontal cortex is characterized by a marked increase in stage 1 errors, suggestive of perseverative behavior (Jones and Mishkin, 1972). Rhinal cortex lesions produce similar perseverative behavior (Murray et al., 1998).

Hence, perseverative behavior on reversals may suggest damage to the prefrontal cortex, rhinal cortex, or both. It is also worth noting that impairments in reversal learning may be limited to the first time a particular type of reversal problem is encountered (Dias et al., 1997); this may explain why a lack of impairment on reversal learning is observed when the monkeys have previously performed reversals in a different stimulus domain (e.g., testing on spatial reversals after having performed object reversals).

RECENT TRENDS IN LEARNING: NEUROPHYSIOLOGY OF LEARNING

Each new year brings with it new learning and development trends, and a few key themes are already shining through in 2019. Organisations are placing a strong emphasis on learning, while

employees want more control of what, where and when they learn. They're also adopting both conventional and unconventional approaches to maximise their learning. This blog will uncover the latest trends in learning for 2019 including:

- Continuous learning culture
- Employee led learning
- People leaders as coaches
- Social learning
- Employee-curated content
- Mobile (aka on-demand)
- Microlearning
- Data and analytics
- Learning Experience Platform (LXP)
- Gamification, Augmented and Virtual Reality
- People data

The learning landscape is shifting. With continuous advances in technology, employees are taking control of their own education and development. Organisations are stepping up to help shape the future of learning. They're focusing on providing coaching, ongoing feedback and resources for learning opportunities.

Technologies which focus on usability and experience are helping improve learner engagement. Unsurprisingly, mobile and social learning are gaining traction and feature heavily in a modern learning environment. Learners are demanding just-in-time learning, where and when they want it. Explore the shifts in learning with our updated learning trends for 2019.

1. CONTINUOUS LEARNING CULTURE

The shelf-life of skills is diminishing. The need for ongoing learning and development is greater than at any previous point in history. 38% of CEOs believe a shortage of key skills is the top people-related threat to growth. That's up from 31% in 2017. With this in mind, it's no surprise that building a culture of continuous learning is currently a priority for L&D leaders. This encompasses just-in-time learning designed to close a specific knowledge gap in a current role, right through to development of competencies and behaviours needed for future roles.

Today's learner expects (and is expected to) continually learn and develop. This culture of continual learning is simultaneously driving and being reinforced by the shifting attitude to performance management. As everyday performance and ongoing feedback approaches gain momentum, the desire to upskill, develop and close skill gaps reinforces the symbiotic relationship between performance and development.

2. EMPLOYEE-LED LEARNING

Organisations are moving away from top-down driven development frameworks and empowering employees to lead their own learning. Some examples of employee-led learning include:

- moving away from a one-size-fits-all' approach
- creating personalised learning paths to help develop employees in their current role, next role and future roles;
- basing content on both development needs and interests.
- 68% of employees prefer to learn at work, according to recent research by LinkedIn, but they don't always have time to complete learning activities. In fact, the same research found that

the #1 challenge for talent development is getting employees to make time for learning.

As the above diagram suggests, over half of employees (58%) want to learn at their own pace depending on their requirements, development needs and interests. But employees still want their manager's input on how to improve, with 56% saying they would spend more time learning if their manager suggested activities.

Instead of a 'one-size-fits-all' approach, organisations are creating personalised learning paths that develop employees in their current role, next role and future career paths."

3. PEOPLE LEADERS AS COACHES

Finding the time for learning is the number one development challenge employees face. The second-largest challenge is getting people leaders to take an active role in employee development. It's no longer only the responsibility of the L&D department to ensure employees get the training they need. Learning professionals are now looking to people managers to own and develop their teams. Empowering people leaders to help employees on their continuous learning journey is becoming a priority. When it's done well, it's highly successful. Nearly three-quarters (74%) of employees who felt empowered to drive their own career say that their manager provides coaching and supports their development.

4. SOCIAL LEARNING

In addition to social collaborative tools, organisations are also experimenting with cross-functional project-based learning, creating online learning marketplaces and structured mentoring forums. At the very minimum, employees expect workplace technologies that allow:

- social networking
- instant messaging,
- online collaboration;
- video conferencing.

Humans are social by nature: 87% of employees say that sharing knowledge with their team is critical for learning. 34% of organisations are already investing in social learning tools and over the next few years we anticipate the uptake will accelerate. The increasing complexity of work, rise of the contingent and freelance workforce, and the desire to work 'anywhere, anytime' will drive the adoption of social collaboration and knowledge-sharing tools.

5. EMPLOYEE-CURATED CONTENT

Relevant content is what matters most to employees. Yet less than half (46%) of employees are satisfied with the relevance of the content provided by their organisation. How can we help employees cut through the clutter? Employees want the ability to create their own online content and share learning resources. It's no surprise that peer-to-peer learning continues to gain traction – empowering people to share relevant content with their colleagues.

Organisations are also supporting apps which curate, publish and share content to keep peers, teammates and managers across the latest and most relevant content. Crowdsourcing means content is constantly refreshed, removing the barrier of irrelevant information which can deter time-poor learners.

6. MOBILE (AKA ON-DEMAND)

Employees expect to access content anytime, anywhere via a mobile device. Although this trend isn't new, corporate adoption levels have lagged behind employee expectations. Over three-quarters of employees do at least some of their learning on a mobile device and 99% of mobile learners believe the mobile format enhanced their learning. Despite this, mobile access is ranked as the second-largest challenge to learning from an employee's perspective. Tellingly, access to mobile learning doesn't register within the top three perceived challenges L&D professionals face. Looking to the future, 23% plan to purchase mobile learning solutions and this trend is expected to accelerate. Organisations that want to improve the learning experience of their employees need to ensure mobile is part of the solution.

7. Microlearning

Making time for learning isn't easy. Our constantly-connected lifestyles also means that attention spans are shrinking. A solution could lie in Microlearning: this is bite-sized chunks of learning content, completed in three to five minutes, that makes learning easily digestible. Some examples of successful microlearning can be found on popular mediums including:

- podcasts
- blogs
- eLearning
- videos

As a medium, videos are still a popular way to learn. More organisations are turning to mobile devices to create quick, inexpensive, easily uploadable content. According to Training Journal (TJ) "In 2019, we can expect to see even more of this 'guerilla' film production with high-end features with interactivity that will be distributed on mobile devices and applications for easy accessibility." Online content can be parceled into smaller components, so employees can learn where and when it suits them.

This trend has been driven not only by a better understanding of how we learn, but also by advances in technology. The uptake of mobile and cloud technologies means content can be accessed as needed. This can have a positive impact on a company's bottom line. Organisations that empower their employees with microlearning experience a 63% increase in revenue compared to their peers.

NEURO-PHYSIOLOGY OF LEARNING

Many seem to be the points of contact that relate the analysis of studies on the neuro-phenomenological vision of knowledge (and the occurrence of states of consciousness in relation to the act of knowing) and further studies phenomena related to bio physical and neuro-logical that govern and influence the physiology of learning.

A study conducted by several parties on the subject show that individual neurons are able to recognize people, landscapes, objects and even written and names. The finding suggests the existence of a consistent and explicit code that could play a role in the transformation of complex visual representations into long-term memories.

This conception of individual neurons as 'thinking cells' - says the neuro-surgeon Itzhak Fried - represents an important step toward deciphering the code of the cognitive brain. If we can understand this process, maybe one day we will be able to build cognitive prostheses to replace

functions lost due to brain injury or disease, and perhaps even to improve memory Angeles is based on a new conception of the mode of storage of memories, stating that encode memories are small sets of neurons located in specific regions of the brain. These small clusters of neural cells simultaneously represent many aspects of the same thing.

This statement leads to the conclusion that each neuron has its own memory and that groups of neurons fire selectively to images of faces, animals, objects or scenes. In this perspective are here analyzed two different areas of research that are based on two different approaches: one referring to the neuro-phenomenological studies (total embodiment of Varela and Thompson), and the other in reference to the neuro-physiological and bio-medical studies (neurophysiology of learning of Zhuo Joseph Tsien).

But as you can remember the mental states activated by past perceptions and refer back to an object in the world, even when it is not present or does not exist? How is it that a model of external reality emerges in the physical system, which is the brain? What role has the intentionality and the emergence of consciousness in this process?

The answers to these problems are numerous and controversial and detection of connection points difficult and problematic (hampered by the differentiation of the areas of inquiry: Philosophy of mind, Philosophy of language, Cognitive science, Neuroscience, etc.). This basically means that "Philosophy" speaks little of "Biology" and "Biology" of "Philosophy" speaks even less.

Tsien founded the Shanghai Institute of Brain Functional Genomics at East China Normal University and is now director of the Center for Systems Neurobiology at Boston University. His studies are focused on the search for a neural code that can explain the experience phenomenologically lived through the observation of specific biological processes.

For a long time research of the neural mechanisms by which memories are stored in the brain has been studied by neuroscientists. Learning and memory are very important in the structuring of knowledge: learning is the process by which one acquires knowledge and memory is the process by which knowledge is preserved in time. For many years we have tried, therefore, to investigate the intricacies of cellular memory and to understand the functional basis for action at the neural level. Tsien and his team, in a biomedical field and through combined and complex experiments, have developed an interesting theory on the basic mechanism by which the brain would be able to transform experience into memory. Clans of neurons involved in coding, they say, make a selection of experiences stored, giving a sense of the experience and transforming it into knowledge. This extraordinary research could allow, in the near future, to decipher the neural universal code allowing the reading of the memories of a human being by monitoring brain activity. Interesting observations are: a) the nature of the mechanisms of action and the behavior of neural cells, b) the sophisticated mechanism of action research (covering the area CA1 of the hippocampus). In this theoretical model each event is represented by a group of neuronal clans that encode different characteristics; a clan is represented by a set of neurons that responds in a similar manner to each stimulus, working in harmony in the encoding of events. It is believed, therefore, that it is the clan to generate neural memories, acting in unison on the information conveyed phenomenal experience. Does this mean that behavior is also the derivation of genetic relational nature of man and his predisposition to the "lineage"? (Maturana Dávila, 2006) The brain is, in this perspective, the clan for neural discrimination of events encoded in memory. In a three-dimensional view, each experience is represented on a pyramid at various levels; each pyramid is considered

an integral part of a polyhedron which, in turn, represents the category common to all the pyramids. This model represents a consolidation of memories in a clear and inconceivable way and demonstrate the dynamic nature of the human brain and its extraordinary ability.

Organization and on the categorization as universal principles of the functioning of our brain. In the case of memory these properties allow you to create an unlimited number of patterns of neuronal activation (corresponding to the number of experiences that an organism can live). In this perspective, Tsien and his research team in a recent article say “The ability to learn and remember conspecifics is essential for the establishment and maintenance of social groups. Many animals, including humans, primates and rodents, depend on stable social relationships for survival. Social learning and social recognition have become emerging areas of interest for neuroscientists but are still not well understood. It has been established that several hormones play a role in the modulation of social recognition including estrogen, oxytocin and arginine vasopression. Relatively few studies have investigated how social recognition might be improved or enhanced. In this study, we investigate the role of the NMDA receptor in social recognition memory, specifically the consequences of altering the ratio of the NR2B:NR2A subunits in the forebrain regions in social behavior. We reproduced transgenic mice in which the NR2B subunit of the NMDA receptor was overexpressed postnatally in the excitatory neurons of the forebrain areas including the cortex, amygdala and hippocampus. We investigated the ability of both our transgenic animals and their wild-type littermate to learn and remember juvenile conspecifics using both 1-hr and 24-hr memory tests.

Our experiments show that the wild-type animals and NR2B transgenic mice performed similarly in the 1-hr test. However, transgenic mice showed better performances in 24-hr tests of recognizing animals of a different strain or animals of a different species. We conclude that NR2B overexpression in the forebrain enhances social recognition memory for different strains and animalspecies”(Jacobs,Tsien, 2012).

CONCLUSION

That having been said, the paideia-society interrelation stands within a paradigmatic vision of contemporary pedagogy like the double-faced Janus, from which a new dimension of man and citizen arises along with a new way of understanding education//educability of the subject-person (Pastena 2011). It is all about suggesting a new way of interpreting pedagogy where the teaching-learning interaction becomes alternative teaching methodology to the many current practices.

No doubt so much uneasiness and failure to achieve success in the schools are caused by the nature and the way of teaching approaches, by an agency that is often too prone to hyperdidacticisms that bring about confusion and disconcert rather than self-orientating enaction. In fact, enaction means understanding learning as the creation of worlds, where the student experiences the didactic action in structural coupling with the teacher. In short, it is a Paideia that is seen in its atropo-ethical dimension as the hard core that allows interaction (in an enactive circuit) between “sense”, “logic” and “evolution”

WHAT IS MEMORY AND FORGETTING MEMORY PROCESSES: ENCODING, STORAGE, RETRIEVAL STAGES OF MEMORY: SENSORY MEMORY, SHORT-TERM MEMORY (WORKING MEMORY), LONG-TERM MEMORY (DECLARATIVE – EPISODIC AND SEMANTIC; PROCEDURAL)

Theories of Forgetting: Interference, Retrieval Failure, Decay, Motivated forgetting?

MEMORY AND FORGETTING MEMORY PROCESSES: ENCODING, STORAGE, RETRIEVAL STAGES OF MEMORY: SENSORY MEMORY, SHORT-TERM MEMORY (WORKING MEMORY), LONG-TERM MEMORY (DECLARATIVE – EPISODIC AND SEMANTIC; PROCEDURAL) THEORIES OF FORGETTING: INTERFERENCE, RETRIEVAL FAILURE, DECAY, MOTIVATED FORGETTING

Memory and Forgetting Memory processes: Encoding, Storage Human Memory

Human memory, like memory in a computer, allows us to store information for later use. In order to do this, however, both the computer and we need to master three processes involved in memory. The first is called encoding; the process we use to transform information so that it can be stored. For a computer this means transferring data into 1's and 0's. For us, it means transforming the data into a meaningful form such as an association with an existing memory, an image, or a sound.

Next is the actual storage, which simply means holding onto the information. For this to take place, the computer must physically write the 1's and 0's onto the hard drive. It is very similar for us because it means that a physiological change must occur for the memory to be stored. The final process is called retrieval, which is bringing the memory out of storage and reversing the process of encoding. In other words, return the information to a form similar to what we stored.

The major difference between humans and computers in terms of memory has to do with how the information is stored. For the most part, computers have only two types; permanent storage and permanent deletion. Humans, on the other hand are more complex in that we have three distinct memory storage capabilities (not including permanent deletion). The first is Sensory memory, referring to the information we receive through the senses. This memory is very brief lasting only as much as a few seconds.

Short Term Memory (STM) takes over when the information in our sensory memory is transferred to our consciousness or our awareness (Engle, Cantor, & Carullo, 1993; Laming, 1992). This is the information that is currently active such as reading this page, talking to a friend, or writing a paper. Short term memory can definitely last longer than sensory memory (up to 30 seconds or so), but it still has a very limited capacity. According to research, we can remember approximately 5 to 9 (7 +/- 2) bits of information in our short term memory at any given time (Miller, 1956) If STM lasts only up to 30 seconds, how do we ever get any work done? Wouldn't we start to lose focus or concentrate about twice every minute? This argument prompted researchers to look at a second phase of STM that is now referred to as Working Memory. Working Memory is the process that takes place when we continually focus on material for longer than STM alone will allow (Baddeley, 1992).

What happens when our short term memory is full and another bit of information enters? Displacement means that the new information will push out part of the old information. Suddenly someone says the area code for that phone number and almost instantly you forget the last two digits of the number. We can further sharpen our short term memory skills, however, by mastering chunking and using rehearsal (which allows us to visualize, hear, say, or even see the information repeatedly and through different senses).

Finally, there is long term memory (LTM), which is most similar to the permanent storage of a computer. Unlike the other two types, LTM is relatively permanent and practically unlimited in terms

of its storage capacity. It's been argued that we have enough space in our LTM to memorize every phone number in the U.S. and still function normally in terms of remembering what we do now. Obviously we don't use even a fraction of this storage space.

There are several subcategories of LTM. First, memories for facts, life events, and information about our environment are stored in declarative memory. This includes semantic memory, factual knowledge like the meaning of words, concepts, and our ability to do math (Lesch & Pollatsek, 1993, Rohrer et al., 1995) and episodic memory, memories for events and situations (Goldring, 1996; Kliegel & Lindberger, 1993). The second subcategory is often not thought of as memory because it refers to internal, rather than external information. When you brush your teeth, write your name, or scratch your eye, you do this with ease because you previously stored these movements and can recall them with ease. This is referred to as nondeclarative (or implicit) memory. These are memories we have stored due to extensive practice, conditioning, or habits.

WHY WE REMEMBER WHAT WE REMEMBER

Short Term Memory. There are typically six reasons why information is stored in our short term memory.

primacy effect – information that occurs first is typically remembered better than information occurring later. When given a list of words or numbers, the first word or number is usually remembered due to rehearsing this more than other information.

recency effect – often the last bit of information is remembered better because not as much time has passed; time which results in forgetting. **distinctiveness** – if something stands out from information around it, it is often remembered better. Any distinctive information is easier to remember than that which is similar, usual, or mundane.

frequency effect – rehearsal, as stated in the first example, results in better memory. Remember trying to memorize a formula for your math class. The more you went over it, the better you knew it.

associations – when we associate or attach information to other information it becomes easier to remember. Many of us use this strategy in our professions and everyday life in the form of acronyms.

reconstruction – sometimes we actually fill in the blanks in our memory. In other words, when trying to get a complete picture in our minds, we will make up the missing parts, often without any realization that this is occurring.

Long Term Memory. Information that passes from our short term to our long term memory is typically that which has some significance attached to it. Imagine how difficult it would be to forget the day you graduated, or your first kiss. Now think about how easy it is to forget information that has no significance; the color of the car you parked next to at the store or what shirt you wore last Thursday. When we process information, we attach significance to it and information deemed important is transferred to our long term memory.

There are other reasons information is transferred. As we all know, sometimes our brains seem full of insignificant facts. Repetition plays a role in this, as we tend to remember things more

the more they are rehearsed. Other times, information is transferred because it is somehow attached to something significant. You may remember that it was a warm day when you bought your first car. The temperature really plays no important role, but is attached to the memory of buying your first car.

FORGETTING

You can't talk about remembering without mentioning its counterpart. It seems that as much as we do remember, we forget even more. Forgetting isn't really all that bad, and is in actuality, a pretty natural phenomenon. Imagine if you remembered every minute detail of every minute or every hour, of every day during your entire life, no matter how good, bad, or insignificant. Now imagine trying to sift through it all for the important stuff like where you left your keys.

There are many reasons we forget things and often these reasons overlap. Like in the example above, some information never makes it to LTM. Other times, the information gets there, but is lost before it can attach itself to our LTM. Other reasons include decay, which means that information that is not used for an extended period of time decays or fades away over time. It is possible that we are physiologically preprogrammed to eventually erase data that no longer appears pertinent to us.

Failing to remember something doesn't mean the information is gone forever though. Sometimes the information is there but for various reasons we can't access it. This could be caused by distractions going on around us or possibly due to an error of association (e.g., believing something about the data which is not correct causing you to attempt to retrieve information that is not there). There is also the phenomenon of repression, which means that we purposefully (albeit subconsciously) push a memory out of reach because we do not want to remember the associated feelings. This is often cited in cases where adults 'forget' incidences of sexual abuse when they were children. And finally, amnesia, which can be psychological or physiological in origin.

Forgetting is an all too common part of daily life. Sometimes these memory slips are simple and fairly innocuous, such as forgetting to return a phone call. Other times, forgetting can be much more dire and even have serious consequences, such as an eyewitness forgetting important details about a crime.

Memory failures are an almost daily occurrence. Forgetting is so common that you probably rely on numerous methods to help you remember important information, such as jotting down notes in a daily planner or scheduling important events on your phone's calendar.

As you are frantically searching for your missing car keys, it may seem that the information about where you left them is permanently gone from your memory. However, forgetting is generally not about actually losing or erasing this information from your long-term memory.

TIME PLAYS A KEY ROLE IN FORGETTING

Psychologist Hermann Ebbinghaus was one of the first to scientifically study forgetting. In experiments where he used himself as the subject, Ebbinghaus tested his memory using three-letter nonsense syllables. He relied on such nonsense words because using previously known words would have involved drawing on his existing knowledge and associations in his memory.²

In order to test for new information, Ebbinghaus tested his memory for periods of time ranging from 20 minutes to 31 days. He then published his findings in 1885 in *Memory: A Contribution to*

Experimental Psychology.

His results, plotted in what is known as the Ebbinghaus forgetting curve, revealed a relationship between forgetting and time. Initially, information is often lost very quickly after it is learned. Factors such as how the information was learned and how frequently it was rehearsed play a role in how quickly these memories are lost. Information stored in long-term memory is surprisingly stable. The forgetting curve also showed that forgetting does not continue to decline until all of the information is lost.² At a certain point, the amount of forgetting levels off.

HOW TO MEASURE FORGETTING

Sometimes it might seem that information has been forgotten, but even a subtle cue can help trigger the memory. Imagine the last time you took an exam for school. While you might have initially felt forgetful and unprepared, seeing the information presented on the test probably helped cue the retrieval of information you might not have known you even remembered.

So how do we know when something has been forgotten? There are a few different ways to measure this:³

- **Recall:** People who have been asked to memorize something, such as a list of terms, might be asked to recall the list from memory. By seeing how many items are remembered, researchers are able to identify how much information has been forgotten. This method might involve the use of free recall (recalling items without hints) or prompted recall (utilizing hints to trigger memories).
- **Recognition:** This method involves identifying information that was previously learned. On a test, for example, students might have to recognize which terms they learned about in a chapter of their assigned reading.

Theories About Why We Forget

Of course, many factors can contribute to forgetting. Sometimes you might be distracted when you learn new information, which might mean that you never truly retain the information long enough to remember it later. Well-known memory researcher Elizabeth Loftus has proposed four key explanations for why forgetting occurs. These have led to some major theories of forgetting.

MEMORY PROCESSES: ENCODING, STORAGE, RETRIEVAL

“Memory” is a single term that reflects a number of different abilities: holding information briefly while working with it (working memory), remembering episodes of one’s life (episodic memory), and our general knowledge of facts of the world (semantic memory), among other types.

Remembering episodes involves three processes: encoding information (learning it, by perceiving it and relating it to past knowledge), storing it (maintaining it over time), and then retrieving it (accessing the information when needed). Failures can occur at any stage, leading to forgetting or to having false memories. The key to improving one’s memory is to improve processes of encoding and to use techniques that guarantee effective retrieval.

Good encoding techniques include relating new information to what one already knows, forming mental images, and creating associations among information that needs to be remembered. The key to good retrieval is developing effective cues that will lead the rememberer back to the encoded information. Classic mnemonic systems, known since the time of the ancient Greeks and still used by some today, can greatly improve one’s memory abilities.

KEY POINTS

- The three main stages of memory are encoding, storage, and retrieval. Problems can occur at any of these stages.
- The three main forms of memory storage are sensory memory, short-term memory, and long-term memory.
- Sensory memory is not consciously controlled; it allows individuals to retain impressions of sensory information after the original stimulus has ceased.
- Short-term memory lasts for a very brief time and can only hold 7 +/- 2 pieces of information at once.
- Long-term storage can hold an indefinitely large amount of information and can last for a very long time.
- Implicit and explicit memories are two different types of long-term memory. Implicit memories are of sensory and automatized behaviors, and explicit memories are of information, episodes, or events.

KEY TERMS

- **memory:** The ability of an organism to record information about things or events with the facility of recalling them later at will.
- **rehearsal:** Repetition of an item in short-term memory in order to store it in long-term memory.
- Memory is the ability to take in information, store it, and recall it at a later time. In psychology, memory is broken into three stages: encoding, storage, and retrieval.

The Memory Process

1. Encoding (or registration): the process of receiving, processing, and combining information. Encoding allows information from the outside world to reach our senses in the forms of chemical and physical stimuli. In this first stage we must change the information so that we may put the memory into the encoding process.
2. Storage: the creation of a permanent record of the encoded information. Storage is the second memory stage or process in which we maintain information over periods of time.
3. Retrieval (or recall, or recognition): the calling back of stored information in response to some cue for use in a process or activity. The third process is the retrieval of information that we have stored. We must locate it and return it to our consciousness. Some retrieval attempts may be effortless due to the type of information.

Problems can occur at any stage of the process, leading to anything from forgetfulness to amnesia. Distraction can prevent us from encoding information initially; information might not be stored properly, or might not move from short-term to long-term storage; and/or we might not be able to retrieve the information once it's stored.

MEMORY ENCODING

Our memory has three basic functions: encoding, storing, and retrieving information. Encoding is the act of getting information into our memory system through automatic or effortful processing. Storage is retention of the information, and retrieval is the act of getting information out of storage and into conscious awareness through recall, recognition, and relearning. There are various models that aim to explain how we utilize our memory. In this section, you'll learn about some of these models as well as the importance of recall, recognition, and relearning.

ENCODING

We get information into our brains through a process called **encoding**, which is the input of information into the memory system. Once we receive sensory information from the environment, our brains label or code it. We organize the information with other similar information and connect new concepts to existing concepts. Encoding information occurs through automatic processing and effortful processing. If someone asks you what you ate for lunch today, more than likely you could recall this information quite easily. This is known as **automatic processing**, or the encoding of details like time, space, frequency, and the meaning of words. Automatic processing is usually done without any conscious awareness. Recalling the last time you studied for a test is another example of automatic processing. But what about the actual test material you studied? It probably required a lot of work and attention on your part in order to encode that information.

What are the most effective ways to ensure that important memories are well encoded? Even a simple sentence is easier to recall when it is meaningful (Anderson, 1984). Read the following sentences (Bransford & McCarrell, 1974), then look away and count backwards from 30 by threes to zero, and then try to write down the sentences (no peeking back at this page!).

- The notes were sour because the seams split.
- The voyage wasn't delayed because the bottle shattered.
- The haystack was important because the cloth ripped.

How well did you do? By themselves, the statements that you wrote down were most likely confusing and difficult for you to recall. Now, try writing them again, using the following prompts: bagpipe, ship christening (shattering a bottle over the bow of the ship is a symbol of good luck), and parachutist. Next count backwards from 40 by fours, then check yourself to see how well you recalled the sentences this time. You can see that the sentences are now much more memorable because each of the sentences was placed in context. Material is far better encoded when you make it meaningful.

There are three types of encoding. The encoding of words and their meaning is known as **semantic encoding**. It was first demonstrated by William Bousfield (1935) in an experiment in which he asked people to memorize words. The 60 words were actually divided into 4 categories of meaning, although the participants did not know this because the words were randomly presented. When they were asked to remember the words, they tended to recall them in categories, showing that they paid attention to the meanings of the words as they learned them.

Visual encoding is the encoding of images, and **acoustic encoding** is the encoding of sounds, words in particular. To see how visual encoding works, read over this list of words: car, level, dog, truth, book, value. If you were asked later to recall the words from this list, which ones do you think you'd most likely remember? You would probably have an easier time recalling the words car, dog, and book, and a more difficult time recalling the words level, truth, and value. Why is this? Because you can recall images (mental pictures) more easily than words alone. When you read the words car, dog, and book you created images of these things in your mind. These are concrete, high-imagery words. On the other hand, abstract words like level, truth, and value are low-imagery words. High-imagery words are encoded both visually and semantically (Paivio, 1986), thus building a stronger memory.

Now let's turn our attention to acoustic encoding. You are driving in your car and a song comes on the radio that you haven't heard in at least 10 years, but you sing along, recalling every word. In the United States, children often learn the alphabet through song, and they learn the number of days in each month through rhyme: "Thirty days hath September, / April, June, and November; / All the rest have thirty-one, / Save February, with twenty-eight days clear, / And twenty-nine each leap year." These lessons are easy to remember because of acoustic encoding. We encode the sounds the words make. This is one of the reasons why much of what we teach young children is done through song, rhyme, and rhythm.

Which of the three types of encoding do you think would give you the best memory of verbal information? Some years ago, psychologists Fergus Craik and Endel Tulving (1975) conducted a series of experiments to find out. Participants were given words along with questions about them. The questions required the participants to process the words at one of the three levels. The visual processing questions included such things as asking the participants about the font of the letters. The acoustic processing questions asked the participants about the sound or rhyming of the words, and the semantic processing questions asked the participants about the meaning of the words. After participants were presented with the words and questions, they were given an unexpected recall or recognition task.

Words that had been encoded semantically were better remembered than those encoded visually or acoustically. Semantic encoding involves a deeper level of processing than the shallower visual or acoustic encoding. Craik and Tulving concluded that we process verbal information best through semantic encoding, especially if we apply what is called the self-reference effect. The self-reference effect is the tendency for an individual to have better memory for information that relates to oneself in comparison to material that has less personal relevance (Rogers, Kuiper & Kirker, 1977).

RECODING

The process of encoding is selective, and in complex situations, relatively few of many possible details are noticed and encoded. The process of encoding always involves **recoding**—that is, taking the information from the form it is delivered to us and then converting it in a way that we can make sense of it. For example, you might try to remember the colors of a rainbow by using the acronym ROY G BIV (red, orange, yellow, green, blue, indigo, violet). The process of recoding the colors into a name can help us to remember. However, recoding can also introduce errors—when we accidentally add information during encoding, then remember that new material as if it had been part of the actual experience (as discussed below).

VARIETIES OF MEMORY

To be a good chess player you have to learn to increase working memory so you can plan ahead for several offensive moves while simultaneously anticipating - through use of memory - how the other player could counter each of your planned moves. [Image: karpidis, <https://goo.gl/EhzMKM>, CC BY-SA 2.0, <https://goo.gl/jSSrc0>]

For most of us, remembering digits relies on short-term memory, or working memory—the ability to hold information in our minds for a brief time and work with it (e.g., multiplying 24×17 without using paper would rely on working memory). Another type of memory is **episodic memory**—the ability to remember the episodes of our lives. If you were given the task of recalling everything you did 2 days ago, that would be a test of episodic memory; you would be required to mentally

travel through the day in your mind and note the main events.

SEMANTIC MEMORY

Is our storehouse of more-or-less permanent knowledge, such as the meanings of words in a language (e.g., the meaning of “parasol”) and the huge collection of facts about the world (e.g., there are 196 countries in the world, and 206 bones in your body). Collective memory refers to the kind of memory that people in a group share (whether family, community, schoolmates, or citizens of a state or a country). For example, residents of small towns often strongly identify with those towns, remembering the local customs and historical events in a unique way. That is, the community’s collective memory passes stories and recollections between neighbors and to future generations, forming a memory system unto itself.

Psychologists continue to debate the classification of types of memory, as well as which types rely on others (Tulving, 2007), but for this module we will focus on episodic memory. Episodic memory is usually what people think of when they hear the word “memory.” For example, when people say that an older relative is “losing her memory” due to Alzheimer’s disease, the type of memory-loss they are referring to is the inability to recall events, or episodic memory. (Semantic memory is actually preserved in early-stage Alzheimer’s disease.) Although remembering specific events that have happened over the course of one’s entire life (e.g., your experiences in sixth grade) can be referred to as **autobiographical memory**, we will focus primarily on the episodic memories of more recent events.

STORAGE MEMORY

Every experience we have changes our brains. That may seem like a bold, even strange, claim at first, but it’s true. We encode each of our experiences within the structures of the nervous system, making new impressions in the process—and each of those impressions involves changes in the brain. Psychologists (and neurobiologists) say that experiences leave **memory traces**, or **engrams** (the two terms are synonyms).

Memories have to be stored somewhere in the brain, so in order to do so, the brain biochemically alters itself and its neural tissue. Just like you might write yourself a note to remind you of something, the brain “writes” a memory trace, changing its own physical composition to do so. The basic idea is that events (occurrences in our environment) create engrams through a process of **consolidation**: the neural changes that occur after learning to create the memory trace of an experience. Although neurobiologists are concerned with exactly what neural processes change when memories are created, for psychologists, the term memory trace simply refers to the physical change in the nervous system (whatever that may be, exactly) that represents our experience.

Although the concept of engram or memory trace is extremely useful, we shouldn’t take the term too literally. It is important to understand that memory traces are not perfect little packets of information that lie dormant in the brain, waiting to be called forward to give an accurate report of past experience. Memory traces are not like video or audio recordings, capturing experience with great accuracy; as discussed earlier, we often have errors in our memory, which would not exist if memory traces were perfect packets of information.

Thus, it is wrong to think that remembering involves simply “reading out” a faithful record of past experience. Rather, when we remember past events, we reconstruct them with the aid of our

memory traces—but also with our current belief of what happened. For example, if you were trying to recall for the police who started a fight at a bar, you may not have a memory trace of who pushed whom first. However, let's say you remember that one of the guys held the door open for you. When thinking back to the start of the fight, this knowledge (of how one guy was friendly to you) may unconsciously influence your memory of what happened in favor of the nice guy. Thus, memory is a construction of what you actually recall and what you believe happened. In a phrase, remembering is reconstructive (we reconstruct our past with the aid of memory traces) not reproductive (a perfect reproduction or recreation of the past).

Psychologists refer to the time between learning and testing as the retention interval. Memories can consolidate during that time, aiding retention. However, experiences can also occur that undermine the memory. For example, think of what you had for lunch yesterday—a pretty easy task. However, if you had to recall what you had for lunch 17 days ago, you may well fail (assuming you don't eat the same thing every day). The 16 lunches you've had since that one have created **retroactive interference**. Retroactive interference refers to new activities (i.e., the subsequent lunches) during the retention interval (i.e., the time between the lunch 17 days ago and now) that interfere with retrieving the specific, older memory (i.e., the lunch details from 17 days ago). But just as newer things can interfere with remembering older things, so can the opposite happen. Proactive interference is when past memories interfere with the encoding of new ones. For example, if you have ever studied a second language, often times the grammar and vocabulary of your native language will pop into your head, impairing your fluency in the foreign language.

in which she shows how memory for an event can be changed via misinformation supplied during the retention interval. For example, if you witnessed a car crash but subsequently heard people describing it from their own perspective, this new information may interfere with or disrupt your own personal recollection of the crash. In fact, you may even come to remember the event happening exactly as the others described it! This **misinformation effect** in eyewitness memory represents a type of retroactive interference that can occur during the retention interval (see Loftus [2005] for a review). Of course, if correct information is given during the retention interval, the witness's memory will usually be improved.

RETRIEVAL MEMORY

Endel Tulving argued that “the key process in memory is retrieval” (1991, p. 91). Why should retrieval be given more prominence than encoding or storage? For one thing, if information were encoded and stored but could not be retrieved, it would be useless. As discussed previously in this module, we encode and store thousands of events—conversations, sights and sounds—every day, creating memory traces. However, we later access only a tiny portion of what we've taken in. Most of our memories will never be used—in the sense of being brought back to mind, consciously. This fact seems so obvious that we rarely reflect on it. All those events that happened to you in the fourth grade that seemed so important then? Now, many years later, you would struggle to remember even a few. You may wonder if the traces of those memories still exist in some latent form. Unfortunately, with currently available methods, it is impossible to know.

Psychologists distinguish information that is available in memory from that which is accessible (Tulving & Pearlstone, 1966). Available information is the information that is stored in memory—but precisely how much and what types are stored cannot be known. That is, all we can know is what information we can retrieve—accessible information. The assumption is that accessible information represents only a tiny slice of the information available in our brains. Most of us have

had the experience of trying to remember some fact or event, giving up, and then—all of a sudden!—it comes to us at a later time, even after we've stopped trying to remember it. Similarly, we all know the experience of failing to recall a fact, but then, if we are given several choices (as in a multiple-choice test), we are easily able to recognize it.

What factors determine what information can be retrieved from memory? One critical factor is the type of hints, or cues, in the environment. You may hear a song on the radio that suddenly evokes memories of an earlier time in your life, even if you were not trying to remember it when the song came on. Nevertheless, the song is closely associated with that time, so it brings the experience to mind.

The general principle that underlies the effectiveness of retrieval cues is the **encoding specificity principle** (Tulving & Thomson, 1973): when people encode information, they do so in specific ways. For example, take the song on the radio: perhaps you heard it while you were at a terrific party, having a great, philosophical conversation with a friend. Thus, the song became part of that whole complex experience. Years later, even though you haven't thought about that party in ages, when you hear the song on the radio, the whole experience rushes back to you. In general, the encoding specificity principle states that, to the extent a retrieval cue (the song) matches or overlaps the memory trace of an experience (the party, the conversation), it will be effective in evoking the memory. A classic experiment on the encoding specificity principle had participants memorize a set of words in a unique setting. Later, the participants were tested on the word sets, either in the same location they learned the words or a different one. As a result of encoding specificity, the students who took the test in the same place they learned the words were actually able to recall more words (Godden & Baddeley, 1975) than the students who took the test in a new setting.

One caution with this principle, though, is that, for the cue to work, it can't match too many other experiences (Nairne, 2002; Watkins, 1975). Consider a lab experiment. Suppose you study 100 items; 99 are words, and one is a picture—of a penguin, item 50 in the list. Afterwards, the cue "recall the picture" would evoke "penguin" perfectly. No one would miss it. However, if the word "penguin" were placed in the same spot among the other 99 words, its memorability would be exceptionally worse. This outcome shows the power of distinctiveness that we discussed in the section on encoding: one picture is perfectly recalled from among 99 words because it stands out. Now consider what would happen if the experiment were repeated, but there were 25 pictures distributed within the 100-item list. Although the picture of the penguin would still be there, the probability that the cue "recall the picture" (at item 50) would be useful for the penguin would drop correspondingly. Watkins (1975) referred to this outcome as demonstrating the **cue overload principle**. That is, to be effective, a retrieval cue cannot be overloaded with too many memories. For the cue "recall the picture" to be effective, it should only match one item in the target set (as in the one-picture, 99-word case).

To sum up how memory cues function: for a retrieval cue to be effective, a match must exist between the cue and the desired target memory; furthermore, to produce the best retrieval, the cue-target relationship should be distinctive. Next, we will see how the encoding specificity principle can work in practice.

Psychologists measure memory performance by using production tests (involving recall) or recognition tests (involving the selection of correct from incorrect information, e.g., a multiple-choice test). For example, with our list of 100 words, one group of people might be asked to recall

the list in any order (a free recall test), while a different group might be asked to circle the 100 studied words out of a mix with another 100, unstudied words (a recognition test). In this situation, the recognition test would likely produce better performance from participants than the recall test. We usually think of recognition tests as being quite easy, because the cue for retrieval is a copy of the actual event that was presented for study. After all, what could be a better cue than the exact target (memory) the person is trying to access? In most cases, this line of reasoning is true; nevertheless, recognition tests do not provide perfect indexes of what is stored in memory. That is, you can fail to recognize a target staring you right in the face, yet be able to recall it later with a different set of cues (Watkins & Tulving, 1975). For example, suppose you had the task of recognizing the surnames of famous authors. At first, you might think that being given the actual last name would always be the best cue. However, research has shown this not necessarily to be true (Muter, 1984). When given names such as Tolstoy, Shaw, Shakespeare, and Lee, subjects might well say that Tolstoy and Shakespeare are famous authors, whereas Shaw and Lee are not. But, when given a cued recall test using first names, people often recall items (produce them) that they had failed to recognize before. For example, in this instance, a cue like George Bernard often leads to a recall of "Shaw," even though people initially failed to recognize Shaw as a famous author's name. Yet, when given the cue "William," people may not come up with Shakespeare, because William is a common name that matches many people (the cue overload principle at work). This strange fact—that recall can sometimes lead to better performance than recognition—can be explained by the encoding specificity principle. As a cue, George Bernard matches the way the famous writer is stored in memory better than does his surname, Shaw, does (even though it is the target). Further, the match is quite distinctive with George Bernard, but the cue William is much more overloaded (Prince William, William Yeats, William Faulkner, will.i.am).

The phenomenon we have been describing is called the recognition failure of recallable words, which highlights the point that a cue will be most effective depending on how the information has been encoded (Tulving & Thomson, 1973). The point is, the cues that work best to evoke retrieval are those that recreate the event or name to be remembered, whereas sometimes even the target itself, such as Shaw in the above example, is not the best cue. Which cue will be most effective depends on how the information has been encoded.

Whenever we think about our past, we engage in the act of retrieval. We usually think that retrieval is an objective act because we tend to imagine that retrieving a memory is like pulling a book from a shelf, and after we are done with it, we return the book to the shelf just as it was. However, research shows this assumption to be false; far from being a static repository of data, the memory is constantly changing. In fact, every time we retrieve a memory, it is altered. For example, the act of retrieval itself (of a fact, concept, or event) makes the retrieved memory much more likely to be retrieved again, a phenomenon called the testing effect or the retrieval practice effect (Pyc & Rawson, 2009; Roediger & Karpicke, 2006). However, retrieving some information can actually cause us to forget other information related to it, a phenomenon called retrieval-induced forgetting (Anderson, Bjork, & Bjork, 1994). Thus the act of retrieval can be a double-edged sword—strengthening the memory just retrieved (usually by a large amount) but harming related information (though this effect is often relatively small).

As discussed earlier, retrieval of distant memories is reconstructive. We weave the concrete bits and pieces of events in with assumptions and preferences to form a coherent story (Bartlett, 1932). For example, if during your 10th birthday, your dog got to your cake before you did, you would likely tell that story for years afterward. Say, then, in later years you misremember where the dog

actually found the cake, but repeat that error over and over during subsequent retellings of the story. Over time, that inaccuracy would become a basic fact of the event in your mind. Just as retrieval practice (repetition) enhances accurate memories, so will it strengthen errors or false memories (McDermott, 2006). Sometimes memories can even be manufactured just from hearing a vivid story. Consider the following episode, recounted by Jean Piaget, the famous developmental psychologist, from his childhood:

One of my first memories would date, if it were true, from my second year. I can still see, most clearly, the following scene, in which I believed until I was about 15. I was sitting in my pram . . . when a man tried to kidnap me. I was held in by the strap fastened round me while my nurse bravely tried to stand between me and the thief. She received various scratches, and I can still vaguely see those on her face. . . . When I was about 15, my parents received a letter from my former nurse saying that she had been converted to the Salvation Army. She wanted to confess her past faults, and in particular to return the watch she had been given as a reward on this occasion. She had made up the whole story, faking the scratches. I therefore must have heard, as a child, this story, which my parents believed, and projected it into the past in the form of a visual memory. . . . Many real memories are doubtless of the same order. (Norman & Schacter, 1997, pp. 187–188)

Piaget's vivid account represents a case of a pure reconstructive memory. He heard the tale told repeatedly, and doubtless told it (and thought about it) himself. The repeated telling cemented the events as though they had really happened, just as we are all open to the possibility of having "many real memories ... of the same order." The fact that one can remember precise details (the location, the scratches) does not necessarily indicate that the memory is true, a point that has been confirmed in laboratory studies, too (e.g., Norman & Schacter, 1997).

PUTTING IT ALL TOGETHER: IMPROVING YOUR MEMORY

A central theme of this module has been the importance of the encoding and retrieval processes, and their interaction. To recap: to improve learning and memory, we need to encode information in conjunction with excellent cues that will bring back the remembered events when we need them. But how do we do this? Keep in mind the two critical principles we have discussed: to maximize retrieval, we should construct meaningful cues that remind us of the original experience, and those cues should be distinctive and not associated with other memories. These two conditions are critical in maximizing cue effectiveness (Nairne, 2002).

So, how can these principles be adapted for use in many situations? Let's go back to how we started the module, with Simon Reinhard's ability to memorize huge numbers of digits. Although it was not obvious, he applied these same general memory principles, but in a more deliberate way. In fact, all **mnemonic devices**, or memory aids/tricks, rely on these fundamental principles. In a typical case, the person learns a set of cues and then applies these cues to learn and remember information. Consider the set of 20 items below that are easy to learn and remember (Bower & Reitman, 1972).

1. is a gun. 11 is penny-one, hot dog bun.
2. is a shoe. 12 is penny-two, airplane glue.
3. is a tree. 13 is penny-three, bumble bee.
4. is a door. 14 is penny-four, grocery store.
5. is knives. 15 is penny-five, big beehive.
6. is sticks. 16 is penny-six, magic tricks.
7. is oven. 17 is penny-seven, go to heaven.
8. is plate. 18 is penny-eight, golden gate.
9. is wine. 19 is penny-nine, ball of twine.

10. is hen. 20 is penny-ten, ballpoint pen.

It would probably take you less than 10 minutes to learn this list and practice recalling it several times (remember to use retrieval practice!). If you were to do so, you would have a set of peg words on which you could “hang” memories. In fact, this mnemonic device is called the peg word technique. If you then needed to remember some discrete items—say a grocery list, or points you wanted to make in a speech—this method would let you do so in a very precise yet flexible way. Suppose you had to remember bread, peanut butter, bananas, lettuce, and so on. The way to use the method is to form a vivid image of what you want to remember and imagine it interacting with your peg words (as many as you need). For example, for these items, you might imagine a large gun (the first peg word) shooting a loaf of bread, then a jar of peanut butter inside a shoe, then large bunches of bananas hanging from a tree, then a door slamming on a head of lettuce with leaves flying everywhere. The idea is to provide good, distinctive cues (the weirder the better!) for the information you need to remember while you are learning it. If you do this, then retrieving it later is relatively easy. You know your cues perfectly (one is gun, etc.), so you simply go through your cue word list and “look” in your mind’s eye at the image stored there (bread, in this case).

This peg word method may sound strange at first, but it works quite well, even with little training (Roediger, 1980). One word of warning, though, is that the items to be remembered need to be presented relatively slowly at first, until you have practice associating each with its cue word. People get faster with time. Another interesting aspect of this technique is that it’s just as easy to recall the items in backwards order as forwards. This is because the peg words provide direct access to the memorized items, regardless of order.

How did Simon Reinhard remember those digits? Essentially he has a much more complex system based on these same principles. In his case, he uses “memory palaces” (elaborate scenes with discrete places) combined with huge sets of images for digits. For example, imagine mentally walking through the home where you grew up and identifying as many distinct areas and objects as possible. Simon has hundreds of such memory palaces that he uses. Next, for remembering digits, he has memorized a set of 10,000 images. Every four-digit number for him immediately brings forth a mental image. So, for example, 6187 might recall Michael Jackson. When Simon hears all the numbers coming at him, he places an image for every four digits into locations in his memory palace. He can do this at an incredibly rapid rate, faster than 4 digits per 4 seconds when they are flashed visually, as in the demonstration at the beginning of the module. As noted, his record is 240 digits, recalled in exact order. Simon also holds the world record in an event called “speed cards,” which involves memorizing the precise order of a shuffled deck of cards. Simon was able to do this in 21.19 seconds! Again, he uses his memory palaces, and he encodes groups of cards as single images.

Many books exist on how to improve memory using mnemonic devices, but all involve forming distinctive encoding operations and then having an infallible set of memory cues. We should add that to develop and use these memory systems beyond the basic peg system outlined above takes a great amount of time and concentration. The World Memory Championships are held every year and the records keep improving. However, for most common purposes, just keep in mind that to remember well you need to encode information in a distinctive way and to have good cues for retrieval. You can adapt a system that will meet most any purpose.

STAGES OF MEMORY: SENSORY MEMORY, SHORT-TERM MEMORY (WORKING

MEMORY), LONG-TERM MEMORY (DECLARATIVE – EPISODIC AND SEMANTIC; PROCEDURAL)

Types of Memory Sensory Memory

Sensory memory allows individuals to retain impressions of sensory information after the original stimulus has ceased. One of the most common examples of sensory memory is fast-moving lights in darkness: if you've ever lit a sparkler on the Fourth of July or watched traffic rush by at night, the light appears to leave a trail. This is because of "iconic memory," the visual sensory store. Two other types of sensory memory have been extensively studied: echoic memory (the auditory sensory store) and haptic memory (the tactile sensory store). Sensory memory is not involved in higher cognitive functions like short- and long-term memory; it is not consciously controlled. The role of sensory memory is to provide a detailed representation of our entire sensory experience for which relevant pieces of information are extracted by short-term memory and processed by working memory.

KEY TAKEAWAYS

Key Points

- Sensory memory allows individuals to recall great detail about a complex stimulus immediately following its presentation.
- There are different types of sensory memory, including iconic memory, echoic memory, and haptic memory.
- In sensory memory, no manipulation of the incoming information occurs, and the input is quickly transferred to the working memory.

KEY TERMS

- **sensory memory:** The brief storage (in memory) of information experienced by the senses; typically only lasts up to a few seconds.
- **iconic:** Visually representative.
- **echoic:** Imitative of a sound; onomatopoeic.

Sensory memory allows individuals to retain impressions of sensory information for a brief time after the original stimulus has ceased. It allows individuals to remember great sensory detail about a complex stimulus immediately following its presentation. Sensory memory is an automatic response considered to be outside of cognitive control. The information represented in this type of memory is the "raw data" which provides a snapshot of a person's overall sensory experience. Information from sensory memory has the shortest retention time, ranging from mere milliseconds to five seconds. It is retained just long enough for it to be transferred to short-term (working) memory.

In sensory memory, no manipulation of the incoming information occurs as it is transferred quickly to working memory. The amount of information is greatly reduced during this transfer because the capacity of working memory is not large enough to cope with all the input coming from our sense organs.

TYPES OF SENSORY MEMORY

It is assumed that there is a subtype of sensory memory for each of the five major senses (touch, taste, sight, hearing, and smell); however, only three of these types have been extensively studied: echoic memory, iconic memory, and haptic memory.

ICONIC MEMORY

Sensory input to the visual system goes into iconic memory, so named because the mental representations of visual stimuli are referred to as icons. Iconic memory has a duration of about 100 ms. One of the times that iconic memory is noticeable is when we see “light trails.” This is the phenomenon when bright lights move rapidly at night and you perceive them as forming a trail; this is the image that is represented in iconic memory.

Light trails: In iconic memory, you perceive a moving bright light as forming a continuous line because of the images retained in sensory memory for milliseconds.

ECHOIC MEMORY

Echoic memory is the branch of sensory memory used by the auditory system. Echoic memory is capable of holding a large amount of auditory information, but only for 3–4 seconds. This echoic sound is replayed in the mind for this brief amount of time immediately after the presentation of the auditory stimulus.

HAPTIC MEMORY

Haptic memory is the branch of sensory memory used by the sense of touch. Sensory receptors all over the body detect sensations like pressure, itching, and pain, which are briefly held in haptic memory before vanishing or being transported to short-term memory. This type of memory seems to be used when assessing the necessary forces for gripping and interacting with familiar objects. Haptic memory seems to decay after about two seconds. Evidence of haptic memory has only recently been identified and not as much is known about its characteristics compared to iconic memory.

SHORT-TERM MEMORY

Short-term memory is also known as working memory. It holds only a few items (research shows a range of 7 +/- 2 items) and only lasts for about 20 seconds. However, items can be moved from short-term memory to long-term memory via processes like rehearsal. An example of rehearsal is when someone gives you a phone number verbally and you say it to yourself repeatedly until you can write it down. If someone interrupts your rehearsal by asking a question, you can easily forget the number, since it is only being held in your short-term memory.

KEY TAKEAWAYS

Key Points

- Short-term memory acts as a scratchpad for temporary recall of information being processed. It decays rapidly and has a limited capacity.
- Rehearsal and chunking are two ways to make information more likely to be held in short-term memory.
- Working memory is related to short-term memory. It contains a phonological loop that preserves verbal and auditory data, a visuospatial scratchpad that preserves visual data, and a central manager that controls attention to the data.

KEY TERMS

- **chunking:** The splitting of information into smaller pieces to make reading and understanding faster and easier.

- **encoding:** The process of converting information into a construct that can be stored within the brain.
- **consolidation:** A process that stabilizes a memory trace after its initial acquisition.

Short-term memory is the capacity for holding a small amount of information in an active, readily available state for a brief period of time. It is separate from our long-term memory, where lots of information is stored for us to recall at a later time. Unlike sensory memory, it is capable of temporary storage. How long this storage lasts depends on conscious effort from the individual; without rehearsal or active maintenance, the duration of short-term memory is believed to be on the order of seconds.

CAPACITY OF SHORT-TERM MEMORY

Short-term memory acts as a scratchpad for temporary recall of information. For instance, in order to understand this sentence you need to hold in your mind the beginning of the sentence as you read the rest. Short-term memory decays rapidly and has a limited capacity.

The psychologist George Miller suggested that human short-term memory has a forward memory span of approximately seven items plus or minus two. More recent research has shown that this number is roughly accurate for college students recalling lists of digits, but memory span varies widely with populations tested and with material used.

For example, the ability to recall words in order depends on a number of characteristics of these words: fewer words can be recalled when the words have longer spoken duration (this is known as the word-length effect) or when their speech sounds are similar to each other (this is called the phonological similarity effect). More words can be recalled when the words are highly familiar or occur frequently in the language. Chunking of information can also lead to an increase in short-term memory capacity. For example, it is easier to remember a hyphenated phone number than a single long number because it is broken into three chunks instead of existing as ten digits.

Rehearsal is the process in which information is kept in short-term memory by mentally repeating it. When the information is repeated each time, that information is re-entered into the short-term memory, thus keeping that information for another 10 to 20 seconds, the average storage time for short-term memory. Distractions from rehearsal often cause disturbances in short-term memory retention. This accounts for the desire to complete a task held in short-term memory as soon as possible.

WORKING MEMORY

Though the term “working memory” is often used synonymously with “short-term memory,” working memory is related to but actually distinct from short-term memory. It holds temporary data in the mind where it can be manipulated. Baddeley and Hitch’s 1974 model of working memory is the most commonly accepted theory of working memory today. According to Baddeley, working memory has a phonological loop to preserve verbal data, a visuospatial scratchpad to control visual data, and a central executive to disperse attention between them.

PHONOLOGICAL LOOP

The phonological loop is responsible for dealing with auditory and verbal information, such as phone numbers, people’s names, or general understanding of what other people are talking about. We could roughly say that it is a system specialized for language. It consists of two parts: a

short-term phonological store with auditory memory traces that are subject to rapid decay, and an articulatory loop that can revive these memory traces. The phonological store can only store sounds for about two seconds without rehearsal, but the auditory loop can “replay them” internally to keep them in working memory. The repetition of information deepens the memory.

VISUOSPATIAL SKETCHPAD

Visual and spatial information is handled in the visuospatial sketchpad. This means that information about the position and properties of objects can be stored. The phonological loop and visuospatial sketchpad are semi-independent systems; because of this, you can increase the amount you can remember by engaging both systems at once. For instance, you might be better able to remember an entire phone number if you visualize part of it (using the visuospatial sketchpad) and then say the rest of it out loud (using the phonological loop).

CENTRAL EXECUTIVE

The central executive connects the phonological loop and the visuospatial sketchpad and coordinates their activities. It also links the working memory to the long-term memory, controls the storage of long-term memory, and manages memory retrieval from storage. The process of storage is influenced by the duration in which information is held in working memory and the amount that the information is manipulated. Information is stored for a longer time if it is semantically interpreted and viewed with relation to other information already stored in long-term memory.

TRANSPORT TO LONG-TERM MEMORY

The process of transferring information from short-term to long-term memory involves encoding and consolidation of information. This is a function of time; that is, the longer the memory stays in the short-term memory the more likely it is to be placed in the long-term memory. In this process, the meaningfulness or emotional content of an item may play a greater role in its retention in the long-term memory.

This greater retention is owed to an enhanced synaptic response within the hippocampus, which is essential for memory storage. The limbic system of the brain (including the hippocampus and amygdala) is not necessarily directly involved in long-term memory, but it selects particular information from short-term memory and consolidates these memories by playing them like a continuous tape.

LONG-TERM MEMORY

Long-term memories are all the memories we hold for periods of time longer than a few seconds; long-term memory encompasses everything from what we learned in first grade to our old addresses to what we wore to work yesterday. Long-term memory has an incredibly vast storage capacity, and some memories can last from the time they are created until we die.

There are many types of long-term memory. Explicit or declarative memory requires conscious recall; it consists of information that is consciously stored or retrieved. Explicit memory can be further subdivided into semantic memory (facts taken out of context, such as “Paris is the capital of France”) and episodic memory (personal experiences, such as “When I was in Paris, I saw the Mona Lisa”).

In contrast to explicit/declarative memory, there is also a system for procedural/implicit memory. These memories are not based on consciously storing and retrieving information, but on implicit

learning. Often this type of memory is employed in learning new motor skills. An example of implicit learning is learning to ride a bike: you do not need to consciously remember how to ride a bike, you simply do. This is because of implicit memory.

KEY TAKEAWAYS

Key Points

- Long-term memory is the final, semi-permanent stage of memory; it has a theoretically infinite capacity, and information can remain there indefinitely.
- Long-term memories can be categorized as either explicit or implicit memories.
- Explicit memories involve facts, concepts, and events, and must be recalled consciously.
- Explicit memories can be either semantic (abstract, fact-based) or episodic (based on a specific event).
- Implicit memories are procedures for completing motor actions.

KEY TERMS

- **long-term memory:** Memory in which associations among items are stored indefinitely; part of the theory of a dual-store memory model.
- **script:** A “blueprint” or routine for dealing with a specific situation.

If we want to remember something tomorrow, we have to consolidate it into long-term memory today. Long-term memory is the final, semi-permanent stage of memory. Unlike sensory and short-term memory, long-term memory has a theoretically infinite capacity, and information can remain there indefinitely. Long-term memory has also been called reference memory, because an individual must refer to the information in long-term memory when performing almost any task. Long-term memory can be broken down into two categories: explicit and implicit memory.

EXPLICIT MEMORY

Explicit memory, also known as conscious or declarative memory, involves memory of facts, concepts, and events that require conscious recall of the information. In other words, the individual must actively think about retrieving the information from memory. This type of information is explicitly stored and retrieved—hence its name. Explicit memory can be further subdivided into semantic memory, which concerns facts, and episodic memory, which concerns primarily personal or autobiographical information.

SEMANTIC MEMORY

Semantic memory involves abstract factual knowledge, such as “Albany is the capital of New York.” It is for the type of information that we learn from books and school: faces, places, facts, and concepts. You use semantic memory when you take a test. Another type of semantic memory is called a script. Scripts are like blueprints of what tends to happen in certain situations. For example, what usually happens if you visit a restaurant? You get the menu, you order your meal, you eat it, and then you pay the bill. Through practice, you learn these scripts and encode them into semantic memory.

EPISODIC MEMORY

Episodic memory is used for more contextualized memories. They are generally memories of specific moments, or episodes, in one’s life. As such, they include sensations and emotions associated with the event, in addition to the who, what, where, and when of what happened. An example of an episodic memory would be recalling your family’s trip to the beach.

Autobiographical memory (memory for particular events in one's own life) is generally viewed as either equivalent to, or a subset of, episodic memory. One specific type of autobiographical memory is a flashbulb memory, which is a highly detailed, exceptionally vivid "snapshot" of the moment and circumstances in which a piece of surprising and consequential (or emotionally arousing) news was heard. For example, many people remember exactly where they were and what they were doing when they heard of the terrorist attacks on September 11, 2001. This is because it is a flashbulb memory.

Semantic and episodic memory are closely related; memory for facts can be enhanced with episodic memories associated with the fact, and vice versa. For example, the answer to the factual question "Are all apples red?" might be recalled by remembering the time you saw someone eating a green apple. Likewise, semantic memories about certain topics, such as football, can contribute to more detailed episodic memories of a particular personal event, like watching a football game. A person that barely knows the rules of football will remember the various plays and outcomes of the game in much less detail than a football expert.

IMPLICIT MEMORY

In contrast to explicit (conscious) memory, implicit (also called "unconscious" or "procedural") memory involves procedures for completing actions. These actions develop with practice over time. Athletic skills are one example of implicit memory. You learn the fundamentals of a sport, practice them over and over, and then they flow naturally during a game. Rehearsing for a dance or musical performance is another example of implicit memory. Everyday examples include remembering how to tie your shoes, drive a car, or ride a bicycle. These memories are accessed without conscious awareness—they are automatically translated into actions without us even realizing it. As such, they can often be difficult to teach or explain to other people. Implicit memories differ from the semantic scripts described above in that they are usually actions that involve movement and motor coordination, whereas scripts tend to emphasize social norms or behaviors.

WORKING MEMORY FROM THE PSYCHOLOGICAL

Since the concept of working memory was introduced over 50 years ago, different schools of thought have offered different definitions for working memory based on the various cognitive domains that it encompasses.

The general consensus regarding working memory supports the idea that working memory is extensively involved in goal-directed behaviors in which information must be retained and manipulated to ensure successful task execution. Before the emergence of other competing models, the concept of working memory was described by the multicomponent working memory model proposed by Baddeley and Hitch. In the present article, the authors provide an overview of several working memory-relevant studies in order to harmonize the findings of working memory from the neurosciences and psychological standpoints, especially after citing evidence from past studies of healthy, aging, diseased, and/or lesioned brains.

In particular, the theoretical framework behind working memory, in which the related domains that are considered to play a part in different frameworks (such as memory's capacity limit and temporary storage) are presented and discussed.

From the neuroscience perspective, it has been established that working memory activates the fronto-parietal brain regions, including the prefrontal, cingulate, and parietal cortices. Recent

studies have subsequently implicated the roles of subcortical regions (such as the midbrain and cerebellum) in working memory.

Aging also appears to have modulatory effects on working memory; age interactions with emotion, caffeine and hormones appear to affect working memory performances at the neurobiological level. Moreover, working memory deficits are apparent in older individuals, who are susceptible to cognitive deterioration. Another younger population with working memory impairment consists of those with mental, developmental, and/or neurological disorders such as major depressive disorder and others.

A less coherent and organized neural pattern has been consistently reported in these disadvantaged groups. Working memory of patients with traumatic brain injury was similarly affected and shown to have unusual neural activity (hyper- or hypoactivation) as a general observation. Decoding the underlying neural mechanisms of working memory helps support the current theoretical understandings concerning working memory, and at the same time provides insights into rehabilitation programs that target working memory impairments from neurophysiological or psychological aspects.

Working memory has fascinated scholars since its inception in the 1960's (Baddeley, 2010; D'Esposito and Postle, 2015). Indeed, more than a century of scientific studies revolving around memory in the fields of psychology, biology, or neuroscience have not completely agreed upon a unified categorization of memory, especially in terms of its functions and mechanisms (Cowan, 2005, 2008; Baddeley, 2010).

From the coining of the term "memory" in the 1880's by Hermann Ebbinghaus, to the distinction made between primary and secondary memory by William James in 1890, and to the now widely accepted and used categorizations of memory that include: short-term, long-term, and working memories, studies that have tried to decode and understand this abstract concept called memory have been extensive (Cowan, 2005, 2008).

Short and long-term memory suggest that the difference between the two lies in the period that the encoded information is retained. Other than that, long-term memory has been unanimously understood as a huge reserve of knowledge about past events, and its existence in a functioning human being is without dispute (Cowan, 2008). Further categorizations of long-term memory include several categories:

1. episodic;
2. semantic;
3. Pavlovian; and
4. procedural memory (Humphreys et al., 1989). For example, understanding and using language in reading and writing demonstrates long-term storage of semantics. Meanwhile, short-term memory was defined as temporarily accessible information that has a limited storage time (Cowan, 2008).

Holding a string of meaningless numbers in the mind for brief delays reflects this short-term component of memory.

Thus, the concept of working memory that shares similarities with short-term memory but attempts to address the oversimplification of short-term memory by introducing the role of information

manipulation has emerged (Baddeley, 2012). This article seeks to present an up-to-date introductory overview of the realm of working memory by outlining several working memory studies from the psychological and neurosciences perspectives in an effort to refine and unite the scientific knowledge concerning working memory.

EPISODIC MEMORY

Episodic memory refers to any events that can be reported from a person's life.

This covers information such as any times, places involved – for example, when you went to the zoo with a friend last week. It is a type of 'declarative' memory, i.e. it can be explicitly inspected and recalled consciously. Episodic memory can be split further into autobiographical episodic memory (memories of specific episodes of one's life) and experimental episodic memory (where learning a fact [a semantic memory, below] has been associated with memory of the specific life episode when it was learned). Flashbulb memories are detailed autobiographical episodic memories that are stored permanently in LTM when they are first learned, often because they were of emotional or historical importance in that person's life (e.g. a birth or a death).

SEMANTIC MEMORY

Like episodic memory, semantic memory is also a type of 'declarative' (explicit, consciously recalled) memory.

However, the conscious recall here is of facts that have meaning, as opposed to the recall of past life events associated with episodic memory. For instance, recalling that you listen to music using your ears does not require knowing when or where you first learned this fact.

PROCEDURAL MEMORY

Procedural memory describes our implicit knowledge of tasks that usually do not require conscious recall to perform them. One example would be riding a bike – you might struggle to consciously recall how to manage the task, but we can [unconsciously] perform it with relative ease.

THEORIES OF FORGETTING: INTERFERENCE, RETRIEVAL FAILURE, DECAY, MOTIVATED FORGETTING

The Interference Theory

What did you have for dinner Tuesday night of last week? Is that difficult to recall? If someone had asked you that question Wednesday morning, you probably would have had no problem recalling what you had for dinner the night before.

But as intervening days pass, the memories of all the other meals you have eaten since then start to interfere with your memory of that one particular meal. This is a good example of what psychologists call the interference theory of forgetting.⁴

According to interference theory, forgetting is the result of different memories interfering with one another. The more similar two or more events are to one another, the more likely interference will occur.

It is difficult to remember what happened on an average school day two months ago because so many other days have occurred since then. Unique and distinctive events, however, are less likely

to suffer from interference. Your high school graduation, wedding, and the birth of your first child are much more likely to be recalled because they are singular events—days like no other.

Interference also plays a role in what is known as the **serial position effect**, or the tendency to recall the first and last items of a list.⁵ For example, imagine that you wrote down a shopping list but forgot to take it with you to the store. In all likelihood, you will probably be able to easily recall the first and last items on your list, but you might forget many of the items that were in the middle.

The first thing you wrote down and the last thing you wrote down stand out as being more distinct, while the fourth item and seventh item might seem so similar that they interfere with each other. There are two basic types of interference that can occur:⁴

- **Retroactive interference** happens when newly acquired information interferes with old memories. For example, a teacher learning the names of her new class of students at the start of a school year might find it more difficult to recall the names of the students in her class last year. The new information interferes with the old information.
- **Proactive interference** occurs when previously learned information makes it more difficult to form new memories. Learning a new phone number or locker combination might be more difficult, for example, because your memories of your old phone number and combination interfere with the new information.

Eliminating interference altogether is impossible, but there are a few things you can do to minimize its effects. One of the best things you can do is rehearse new information in order to better commit it to memory. In fact, many experts recommend overlearning important information, which involves rehearsing the material over and over again until it can be reproduced perfectly with no errors.⁶

Another tactic to fight interference is to switch up your routine and avoid studying similar material back to back. For example, don't try to study vocabulary terms for your Spanish language class right after studying terms for your German class. Break up the material and switch to a completely different subject each study session.

Sleep also plays an essential role in memory formation. Researchers suggest that sleeping after you learn something new is one of the best ways to turn new memories into lasting ones.

THE DECAY THEORY OF FORGETTING

According to the trace theory of memory, physical and chemical changes in the brain result in a memory "trace." Information in short-term memory lasts several seconds and if it is not rehearsed, the neurochemical memory trace quickly fades.⁸ According to the trace decay theory of forgetting, the events that happen between the formation of a memory and the recall of the memory have no impact on recall.⁹

Trace theory proposes that the length of time between the memory and recalling that information determines whether the information will be retained or forgotten. If the time interval is short, more information will be recalled. If a longer period of time passes, more information will be forgotten and memory will be poorer.

The idea that memories fade over time is hardly new. The Greek philosopher Plato suggested such a thing more than 2,500 years ago. Later, experimental research by psychologists such as Ebbinghaus bolstered this theory.²

One of the problems with this theory is that it is difficult to demonstrate that time alone is responsible for declines in recall. In real-world situations, many things happen between the formation of a memory and the recall of that information. A student who learns something in class, for example, might have hundreds of unique and individual experiences between learning that information and having to recall it on an exam.

Was forgetting the date that the American Revolutionary War began due to the length of time between learning the date in your American History class and being tested on it? Or did the multitude of information acquired during that interval of time play a role? Testing this can be exceedingly difficult. It is nearly impossible to eliminate all the information that might have an influence on the creation of the memory and the recall of the memory.

Another problem with decay theory is it does not account for why some memories fade quickly while others linger. Novelty is one factor that plays a role. For example, you are more likely to remember your very first day of college than all of the intervening days between it and graduation. That first day was new and exciting, but all the following days probably seem quite similar to each other.

RETRIEVAL FAILURE THEORY

Retrieval failure is where the information is in long term memory, but cannot be accessed. Such information is said to be available (i.e. it is still stored) but not accessible (i.e. it cannot be retrieved). It cannot be accessed because the retrieval cues are not present.

When we store a new memory we also store information about the situation and these are known as retrieval cues. When we come into the same situation again, these retrieval cues can trigger the memory of the situation. Retrieval cues can be: **External / Context** - in the environment, e.g. smell, place etc. **Internal / State** - inside of us, e.g. physical, emotional, mood, drunk etc.

There is considerable evidence that information is more likely to be retrieved from long-term memory if appropriate retrieval cues are present. This evidence comes from both laboratory experiments and everyday experience. A retrieval cue is a hint or clue that can help retrieval.

Tulving (1974) argued that information would be more readily retrieved if the cues present when the information was encoded were also present when its retrieval is required. For example, if you proposed to your partner when a certain song was playing on the radio, you will be more likely to remember the details of the proposal when you hear the same song again. The song is a retrieval cue - it was present when the information was encoded and retrieved.

Tulving suggested that information about the physical surroundings (external context) and about the physical or psychological state of the learner (internal context) is stored at the same time as information is learned. Reinstating the state or context makes recall easier by providing relevant information, while retrieval failure occurs when appropriate cues are not present. For example, when we are in a different context (i.e. situation) or state.

CONTEXT (EXTERNAL) CUES

Retrieval cues may be based on context - the setting or situation in which information is encoded and retrieved. Examples include a particular room, driving along a motorway, a certain group of people, a rainy day and so on.

Context also refers to the way information is presented. For example, words may be printed, spoken or sung, they may be presented in meaningful groups - in categories such as lists of animals or furniture - or as a random collection without any link between them. Evidence indicates that retrieval is more likely when the context at encoding matches the context at retrieval.

You may have experienced the effect of context on memory if you have ever visited a place where you once lived (or an old school). Often such a visit helps people recall lots of experiences about the time they spent there which they did not realize were stored in their memory.

A number of experiments have indicated the importance of context-based cues for retrieval. An experiment conducted by **Tulving and Pearlstone (1966)** asked participants to learn lists of words belonging to different categories, for example names of animals, clothing and sports.

Participants were then asked to recall the words. Those who were given the category names recalled substantially more words than those who were not. The categories provided a context, and naming the categories provided retrieval cues. Tulving and Pearlstone argued that cue-dependent forgetting explains the difference between the two groups of participants. Those who recalled fewer words lacked appropriate retrieval cues.

An interesting experiment conducted by **Baddeley (1975)** indicates the importance of setting for retrieval. Baddeley (1975) asked deep-sea divers to memorize a list of words. One group did this on the beach and the other group underwater. When they were asked to remember the words half of the beach learners remained on the beach, the rest had to recall underwater.

Half of the underwater group remained there and the others had to recall on the beach. The results show that those who had recalled in the same environment (i.e. context) which they had learned recalled 40% more words than those recalling in a different environment. This suggests that the retrieval of information is improved if it occurs in the context in which it was learned.

State (internal) Dependent Cues The basic idea behind state-dependent retrieval is that memory will be best when a person's physical or psychological state is similar at encoding and retrieval.

For example, if someone tells you a joke on Saturday night after a few drinks, you'll be more likely to remember it when you're in a similar state - at a later date after a few more drinks. Stone cold sober on Monday morning, you'll be more likely to forget the joke.

State retrieval clues may be based on the physical or psychological state of the person when information is encoded and retrieved. For example, a person may be alert, tired, happy, sad, drunk or sober when the information was encoded. They will be more likely to retrieve the information when they are in a similar state.

Tulving and Pearlstone's (1966) study involved **external cues** (e.g. presenting category names). However, cue-dependent forgetting has also been shown with **internal cues** (e.g. mood state). Information about current mood state is often stored in the memory trace, and there is more forgetting if the mood state at the time of retrieval is different. The notion that there should be less forgetting when the mood state at learning and at retrieval is the same is generally known as **mood-state-dependent memory**.

A study by **Goodwin et al. (1969)** investigated the effect of alcohol on state-dependent retrieval.

They found that when people encoded information when drunk, they were more likely to recall it in the same state. For example, when they hid money and alcohol when drunk, they were unlikely to find them when sober. However, when they were drunk again, they often discovered the hiding place.

Other studies found similar state-dependent effects when participants were given drugs such as marijuana.

People tend to remember material better when there is a match between their mood at learning and at retrieval. The effects are stronger when the participants are in a positive mood than a negative mood. They are also greater when people try to remember events having personal relevance.

EVALUATION

According to retrieval-failure theory, forgetting occurs when information is available in LTM but is not accessible. Accessibility depends in large part on retrieval cues. Forgetting is greatest when context and state are very different at encoding and retrieval. In this situation, retrieval cues are absent and the likely result is cue-dependent forgetting.

There is considerable evidence to support this theory of forgetting from laboratory experiments. The ecological validity of these experiments can be questioned, but their findings are supported by evidence from outside the laboratory.

For example, many people say they can't remember much about their childhood or their school days. But returning to the house in which they spent their childhood or attending a school reunion often provides retrieval cues which trigger a flood of memories.

MOTIVATED FORGETTING IN EARLY

Educators assume that students are motivated to retain what they are taught. Yet, students commonly report that they forget most of what they learn, especially in mathematics. In the current study I ask whether students may be motivated to forget mathematics because of academic experiences threaten the self-perceptions they are committed to maintaining. Using a large dataset of 1st and 2nd grade children (N = 812), I hypothesize that math anxiety creates negative experiences in the classroom that threaten children's positive math self-perceptions, which in turn spurs a motivation to forget mathematics.

I argue that this motivation to forget is activated during the winter break, which in turn reduces the extent to which children grow in achievement across the school year. Children were assessed for math self-perceptions, math anxiety and math achievement in the fall before going into winter break. During the spring, children's math achievement was measured once again.

A math achievement growth score was devised from a regression model of fall math achievement predicting spring achievement. Results show that children with higher math self-perceptions showed reduced growth in math achievement across the school year as a function of math anxiety. Children with lower math interest self-perceptions did not show this relationship. Results serve as a proof-of-concept for a scientific account of motivated forgetting within the context of education.

INTRODUCTION

Despite all of the effort that students put into studying, they commonly report that knowledge is

rapidly lost once a course is over. While the belief in a total loss of formally acquired knowledge is false (Bahrlick, 1979), it is true that students experience a significant amount of forgetting soon after the completion of a course (Conway et al., 1991; Kamuche and Ledman, 2011). Research on long-term retention of classroom knowledge reports that forgetting arises because of blocked learning schedules (Landauer and Bjork, 1978; Dempster, 1992), a lack of subsequent relearning (Bahrlick and Phelps, 1987; Bahrlick and Hall, 1991; Cooper et al., 2000; Deslauriers and Wieman, 2011), poor initial knowledge structures and shallow levels of understanding gained during the course itself (Conway et al., 1991). In this article, I consider an alternative explanation. I draw on the suppression and threat based coping literature to argue that students themselves may be motivated to forget due to negative academic experiences that threaten their self-perceptions.

MOTIVATED FORGETTING

Motivated forgetting is the active process of forgetting memories that are unpleasant, painful, or generally threatening to the self-image that individuals strive to maintain (Tajfel and Turner, 1986; Thompson et al., 1997). Research in cognitive psychology demonstrates that people can intentionally down-prioritize unwanted memories from entering consciousness via control processes. For instance, studies using the think-no-think paradigm (Anderson and Green, 2001; Anderson and Levy, 2009) demonstrate that individuals are capable of intentionally forgetting memories for words that were previously encoded. The think-no-think paradigm begins by requiring students to first learn a list of cue-target pairs (e.g., Ordeal-Roach). After this initial learning phase, individuals are presented with a previously studied cue (i.e., Ordeal) and are instructed to either remember the associated target word (i.e., Think of Roach) or to suppress the associated target word (i.e., No-think; Roach). During a memory test at the end, individuals are again presented with the same cues and asked to try their best to recall the correct target memory words. These studies consistently reveal that individuals have more difficulty recalling words that they were previously instructed to suppress relative to words they were instructed to remember. Additionally, individuals are also worse at recalling suppressed words relative to baseline words which were previously studied but were not paired with either “remember” or “suppress” instructions.

THREAT BASED MODEL OF MOTIVATED FORGETTING

The cognitive literature on intentional forgetting provides compelling evidence that forgetting previously encoded information is possible, yet it has not provided an account for why individuals engage in intentional forgetting outside of the laboratory. Recent social psychological investigations have advanced the motivated forgetting literature by developing a framework to predict the social and intrapersonal circumstances that elicit motivated forgetting.

A growing body of research draws on threat-based theories to argue that motivated forgetting arises as a possible coping mechanism to defend against memories that threaten the integrity of the self (Tajfel and Turner, 1986; Aronson et al., 1999; Sherman and Cohen, 2006). Threat-based theories begin with the premise that people are motivated to see themselves in an overly positive light and will fundamentally alter their behaviors, attention, and even memory processes to maintain this positive internal representation (Greenwald, 1980; Taylor and Brown, 1994).

MOTIVATED FORGETTING AND ACADEMIC BREAK PERIODS

A recent study examined the consequences of motivated forgetting within the context of education, where students are generally motivated to remember. Ramirez et al. (2017) asked whether we can draw on the basic premises underlying the research on psychological threat and motivated

forgetting to predict the circumstances under which students forget course content once the class is over. To test this, students enrolled in a multivariable calculus course were asked to report their math self-perceptions and course relevant stress. At the end of the quarter, students completed their final exam per usual which served as a baseline measure of acquired knowledge. The authors measured how much content students forgot by asking them to re-take some items from their final exam 2 weeks into the summer break.

CURRENT STUDY

To summarize, memory research suggests that people are capable of intentional forgetting. Threat-based theories identify self-perceptions and experiences that threaten self-perceptions as key ingredients in creating a defensive memory reaction that leads to a motivation to forget. Recent neuro investigations of threat suggests that brain activity during rest periods is associated with activation in areas involved in defensive memory adaptations. The aim of the current proof-of-concept study is to address whether children at risk for motivated forgetting may be forgetting important course relevant content during academic break periods.

LIMITATIONS

The current study holds several limitations which warrant attention. For instance, the data collection timeline makes it difficult to make a strong case that the winter break period was responsible for allowing students to engage in motivated forgetting; all of the students in the study underwent a winter break period. Future research should examine achievement immediately prior to and after the winter break period using assessments that measure what children are learning in their specific class. The reliability for my measure of math self-perceptions could have been higher if children had been presented with more items, as well. The correlational research design also did not allow me to manipulate extensive rest periods or identity threat, which could have provided causal evidence for the account I put forth. Lastly, I was also not able to assess perceived threat, intention to forget, or suppression-avoidance processes, which limited my ability to provide greater evidence for the mechanism of motivated forgetting.

IMPLICATIONS AND FUTURE DIRECTIONS

The work reported here extends research on motivated forgetting to an educational context where students typically exert a great deal of effort to avoid forgetting. This work also makes a novel contribution by providing evidence that even young children are capable of experiencing threat-based motivated forgetting. If motivated forgetting is indeed a factor reducing children's accessibility of memories for important course content, then ensuring that children begin and leave the classroom with a restored sense of self (Walton, 2014) could be quite useful in reducing motivated forgetting.

CONCLUSION

Taken together, the promising findings of this proof-of-concept study suggests that children may deal with threatening classroom experiences by forgetting important course relevant knowledge. Although there has been a recent interest in using a motivated forgetting framework to understand defensive adaptations in the social psychology literature (Shu et al., 2011; Dalton and Huang, 2014; Kouchaki and Gino, 2016), the work reported here and elsewhere (Ramirez et al., 2017) is the first to extend research on motivated forgetting to the classroom. These findings lead to a novel conception of the defensive adaptations that students engage in when they are "at rest" from schooling.

MULTIPLE CHOICE QUESTION

1. When an object is moved farther away, we tend to see it as more or less invariant in size. This is due to:

- a) Shape Constancy
- b) Colour Constancy
- c) Size Constancy
- d) Brightness Constancy
- e) None of the above

Answer: C

2. Reversible goblet is a favoured demonstration of:

- a) A figure-ground reversal
- b) A focus-margin reversal
- c) A shape-size reversal
- d) A size-contour reversal
- e) None of the above

Answer: A

3. A simpler form of stroboscopic motion is :

- a) Psychokinesis
- b) Autokinetic Effect
- c) Phi-Phenomenon
- d) Illusion
- e) Hallucination

Answer: C

4. Empiricists (Barkeley, Locke) maintained that we learn our ways of perceiving through :

- a) Eyes
- b) Motivation
- c) Experience
- d) Learning
- e) None of the above

Answer: C

5. William James characterised the perception of an infant as a :

- a) Blooming buzzing confusion
- b) Haphazard Stimulation of nerve cells
- c) Stimulation of nerve cells in the eyes
- d) Stimulation of rods and cones
- e) None of the above

Answer: A

6. Behaviourists have:

- (a)** No theory of learning
- (b)** No theory of thinking
- (c)** No theory of memory
- (d)** No theory of perception
- (e)** None of the above

Answer: D

7. The process by which the eyes get prepared to see very dim light is known as:

- a)** Light Adaptation
- b)** Dark Adaptation
- c)** Brightness Adaptation
- d)** Colour Adaptation
- e)** None of the above

Answer: B

8. The partially colour blind people are known as:

- a)** Blind
- b)** Colour-blind
- c)** Achromats
- d)** Dichromats
- e)** None of the above

Answer: D

9. Totally colour blind people are otherwise known as :

- a)** Colour-blind
- b)** Achromats
- c)** Monochromats
- d)** Dichromats
- e)** None of the above

Answer: C

10. The phenomenon of shifting from one picture to another is known as :

- a)** Retina Rivalry
- b)** Eyes Rivalry
- c)** Attention Rivalry
- d)** Perception Rivalry
- e)** None of the above

Answer: A

11. When the lens cannot bulge out to the extent necessary due to muscular defects, the individual suffers from:

- a)** Double Vision
- b)** Astigmatism
- c)** Myopia
- d)** Farsightedness

e) None of the above

Answer: D

12. Due to the irregularities in the formation of the lens or the cornea, the object viewed will be partly clear and partly blurred. This occurs when the individual suffers from:

a) Astigmatism

b) Colour-blindness

c) Distraction

d) Retinal Disparity

e) None of the above

Answer: A

13. The length of car number has reference to:

a) Shifting of Attention

b) Distraction

c) Span of Attention

d) Focus and Margin

e) Focus of Consciousness

Answer: C

14. Sensations of movement from inside our bodies are called:

(a) Proprioception

(b) Perception

(c) Interoception

(d) Sensation

(e) Attention

Answer: A

15. Sensation increases by a constant amount each time the stimulus is doubled. This is called:

(a) Lewin-Zeigamik Effect

(b) Lewin-Prentice Effect

(c) Mallinoswki Law

(d) Webber-Fechner Law

(e) None of the above

Answer: D

16. The experiments which tell us about the relationship between the intensity of stimulus and the consequent changes in the intensity of sensation are included in :

a) Psychoanalysis

b) Gestalt Psychology

c) Parapsychology

d) Psychophysics

e) None of the above

Answer: D

17. The study on the Zulu tribes of Africa revealed that the Zulu individuals would be less susceptible to the:

- a) Figure-Ground Phenomenon
- b) Zollner Illusion
- c) Ponzo illusion
- d) Muller-Lyer Illusion
- e) None of the above

Answer: D

18. A complete change of vitreous humour occurs approximately once in:

- a) Every four hours
- b) Every three hours
- c) Every two hours
- d) Every one hour
- e) None of the above

Answer: A

19. The theory of colour perception which seems to be the most acceptable one today is called the:

- a) Retinex Theory
- b) Perspective Theory
- c) Confusion Theory
- d) Young-Helmholtz Theory
- e) None of the above

Answer: A

20. Who developed the 'Retinex Theory' of colour perception?

- a) Thomas Young
- b) Hermann Von Helmholtz
- c) Edward Herring
- d) Edwin Land
- e) None of the above

Answer: D

21. Who received Nobel Prize for his research on the mechanisms of the cochlea?

- a) Snyder
- b) Pronko
- c) VonBekesy
- d) Stratton
- e) Turnbull

Answer: C

22. The condition of night-blindness is a consequence of:

- (a) Rhodopsin deficiency in rods

- (b)** Defective rods
- (c)** Defective Cones
- (d)** Defective Retina
- (e)** None of the above

Answer: A

23. As compared with cones, rods appear to be more sensitive to:

- a)** Longer Wavelengths
- b)** Any wavelengths
- c)** Both shorter and longer wavelengths
- d)** Shorter wavelengths
- e)** None of the above

Answer: D

24. The alteration in the comparative sensitivity of the retinal apparatus which accompanies change in the level of light energy is known as:

- a)** Purkinje Effect
- b)** Dark Adaptation
- c)** Scotopic Vision
- d)** Visual Acuity
- e)** None of the above

Answer: A

25. An increase in sensitivity of retina owing to absence of stimulation in darkness is known as:

- a)** Dark Adaptation
- b)** Scotopic Vision
- c)** Visual Acuity
- d)** Photopic Vision
- e)** None of the above

Answer: A

26. The decrease in sensitivity of the eye which occurs on account of its stronger stimulation is known as:

- a)** Light Adaptation
- b)** Photopic Vision
- c)** Scotopic Vision
- d)** Visual Acuity
- e)** None of the above

Answer: A

27. In cone adaptation experiment, test field is strictly limited to the:

- (a)** Cone-free fovea
- (b)** Cornea
- (c)** Retina

- (d)** Rod-free fovea
- (e)** None of the above

Answer: D

28. Reaction to powerful light, primarily by cones, is called:

- a)** Photopic Vision
- b)** Scotopic Vision
- c)** Colourless Vision
- d)** Visual Acuity
- e)** None of the above

Answer: A

29. Visual reaction of the dark adapted eye to very feeble light is called :

- a)** Photopic Vision
- b)** Scotopic vision
- c)** Visual Acuity
- d)** Colourless Vision
- e)** None of the above

Answer: B

30. Visual angle varies inversely with:

- a)** Acuity
- b)** Light
- c)** Brightness
- d)** Length of cones
- e)** Length of rods

Answer: A

31. Ability to discriminate fine differences in visual detail or visual sharpness is otherwise known as:

- a)** Photopic Vision
- b)** Scotopic Vision
- c)** Visual Acuity
- d)** Colourless Vision
- e)** None of the above

Answer: C

32. Intensity multiplied by its duration brings about a constant perceptual effect. Let "I" stands for light intensity and "T" for time or duration, then $I \times T = C$, where "C" is constant perceptual effectiveness. This above principle is called:

- a)** Roscoe-Bunsen Law
- b)** Hess and Polt Law
- c)** Evans Principle
- d)** Landis Principle

e) None of the above

Answer: A

33. Cases of yellow-blue colourblindness are:

a) Maximum

b) Exceedingly Rare

c) Mostly found in children

d) Mostly found in women

e) Mostly found in men

Answer: B

34. "Interest is latent attention and attention is interest in action." This statement deals with the:

a) Objective determinants of attention

b) Span of attention

c) Subjective determinants of attention

d) Shifting of attention

e) None of the above

Answer: C

35. "It is not a different process; it is just attention to irrelevant stimuli that are not a part of the main assigned task." Then what is it?

a) Distraction

b) Shifting of Attention

c) Span of attention

d) Involuntary Attention

e) Voluntary Attention

Answer: A

36. Simultaneous focussing on two separate activities is otherwise known as:

a) Span of attention

b) Shifting of attention

c) Division of attention

d) Distraction

e) None of the above

Answer: C

37. When familiar large objects look smaller than they are known to be, they are regarded as being at a distance. This is an instance of what is called:

(a) Visual Acuity

(b) Monocular Parallax

(c) Linear Perspective

(d) Scotopic Vision

(e) Pliotopic Vision

Answer: C

38. Movement Parallax is a monocular cue of distance or depth and for this reason it is also called:

- a)** Visual Acuity
- b)** Monocular parallax
- c)** Linear Perspective
- d)** Scotopic vision
- e)** Photopic Vision

Answer: B

39. Certain alterations in the colour of objects occur depending upon their relative distances from the observer. For this reason, distant hills look blue on account of the light rays travelling through haze. This illustrates:

- (a)** Linear Perspective
- (b)** Monocular Parallax
- (c)** Aerial Perspective
- (d)** Visual Acuity
- (e)** Scotopic Vision

Answer: C

40. A set of depth cues of the nature of some sort of arrangement of proportional rise and fall in compactness of designs which is related to perspectives is called:

- (a)** Rods
- (b)** Cones
- (c)** Gradients
- (d)** Perspectives
- (e)** None of the above

Answer: C

41. The apparent displacement of an object resulting from an actual change of observer's position is known as:

- (a)** Parallax
- (b)** Acuity
- (c)** Scotopic Vision
- (d)** Photopic Vision
- (e)** None of the above

Answer: A

42. The phenomenon of "induced movement" occurs when there is some real movement which is attributed to:

- (a)** A right object
- (b)** A real object
- (c)** A wrong object
- (d)** A substitute object
- (e)** None of the above

Answer: C

43. “It has been said that beauty is in the eye of the beholder” – With what factors of perception this statement deals?

- (a) Objective Factors
- (b) Figure and Ground
- (c) Phi-phenomenon
- (d) Functional Factors
- (e) None of the above

Answer: D

44. According to Woodworth (1938), the first systematic experiment that attempted to measure the span of apprehension was carried out by:

- (a) Jevons
- (b) Paulham
- (c) Jastrow
- (d) Cairnes
- (e) Hersey

Answer: A

45. The first experiment to measure span of attention (apprehension) was designed by:

- (a) Coren and Porac in 1979
- (b) Coren and Girgus in 1978
- (c) Jevons in 1871
- (d) Watkins in 1973
- (e) None of the above

Answer: C

46. Who was/were the Subject (S) in Jevon’s first experiment on span of apprehension?

- (a) Boys from different SES
- (b) Girls from different SES
- (c) A friend of Jevons
- (d) Jevons himself
- (e) The wife of Jevons

Answer: D

47. The first person to document the existence of the sensory register and to explore its properties was:

- (a) George Sperling (1960)
- (b) Paulham (1887)
- (c) Cairnes (1891)
- (d) Hersey (1936)
- (e) O’comer (1958)

Answer: A

48. From his experiments of sensory register, Sperling suggested that there is some visual trace available to the Subject that prolongs the life of the image. He calls this visual trace as the:

- (a) Sensory Information Centre
- (b) Perceptual Information Centre
- (c) Attending Information Centre
- (d) Apprehension Information Centre
- (e) None of the above

Answer: A

49. In 1976, Neisser introduced a term for "Sensory Information Store." That term is called as:

- (a) Focus
- (b) Margin
- (c) Prepotency
- (d) Icon
- (e) Extensity

Answer: D

50. When tachistoscope exposures are short and there is no post exposure masking field, we can be fairly sure that the Subject is actually reading the stimulus:

- (a) From the icon rather than from the visual image itself
- (b) From the image
- (c) From the short-term memory storage
- (d) From the long-term memory storage
- (e) None of the above

Answer: A

51. A basis on which one stream of information can be segregated and attended to while others can be ignored is known as:

- (a) Basilar Membrane
- (b) Cochlea
- (c) Tympanic Membrane
- (d) Channel
- (e) Eustachian tube

Answer: D

52. The most important school of psychology which has contributed a lot toward perception is:

- (a) Psychoanalysis
- (b) Behaviouristic School
- (c) Structuralistic School
- (d) Gestalt Psychology
- (e) Functionalistic School

Answer: D

53. Autokinetic movement does not occur if there is a fixed:

- (a) Frame of Reference
- (b) Illusion
- (c) Vision
- (d) Distance between stimulus and the eye
- (e) None of the above

Answer: A

54. A stimulus is any change in external energy that activates:

- (a) An effector organ
- (b) A sense organ and its receptors
- (c) A cell
- (d) A neuron
- (e) Any cell of the sense organs

Answer: B

55. Hue, saturation and brightness are the conventional terms which are used to characterise the attributes of:

- (a) Brightness
- (b) Colours
- (c) Light
- (d) Darkness
- (e) None of the above

Answer: B

56. Vision in the ordinary ranges of daylight from fairly faint twilight up to the brightest blaze of the sun is called:

- (a) Photopic Vision
- (b) Scotopic Vision
- (c) Autokinetic Effect
- (d) Phi-phenomenon
- (e) Illusion

Answer: A

57. The important part of the inner ear for hearing is the snail-shaped:

- (a) Cochlea
- (b) Round Window
- (c) Oval Window
- (d) Semicircular Canals
- (e) Auditory Nerve

Answer: A

58. The most primitive and oldest feature of music is:

- (a) Harmony
- (b) Melody

- (c) Rhythm
- (d) Song
- (e) None of the above

Answer: C

59. Phi-phenomenon is a form of:

- (a) Stroboscopic Motion
- (b) Photopic Vision
- (c) Scotopic Vision
- (d) Autokinetic Effect
- (e) Illusion

Answer: A

60. Which one of the following is not a principle of Organization of Perception?

- (a) The Law of Proximity
- (b) The Law of Similarity
- (c) The Law of Pragnaz
- (d) The Law of Contrast
- (e) None of the above

Answer: D

61. Alcohol is/an:

- (a) Stimulant
- (b) Sensory Stimulus
- (c) Effective Stimulus
- (d) Depressant
- (e) None of the above

Answer: D

62. The name given to the cone pigments is:

- (a) Idopsin
- (b) Bipolar Cells
- (c) Ganglian Cells
- (d) Rhodopsin
- (e) None of the above

Answer: A

63. Ishihara test is meant for testing:

- (a) Visual Experience
- (b) Principal complementary Colour
- (c) Wavelengths
- (d) Colour-blindness
- (e) None of the above

Answer: D

64. Young-Helmholtz theory of colour vision can otherwise be called:

- (a)** Trichromatic Theory
- (b)** Opponent Process Theory
- (c)** Ladd-Franklin Theory
- (d)** Scientific Validity Theory
- (e)** None of the above

Answer: A

65. A continuous small tremor of the eyes is known as:

- (a)** Rod-Cone breaks
- (b)** Purkinje Effect
- (c)** Physiological Nystagmus
- (d)** Acuity
- (e)** None of the above

Answer: C

66. The eye is sensitive to wavelengths of light that range from about:

- (a)** 380 to about 760 nm
- (b)** 300 to about 500 nm
- (c)** 200 to about 300 nm
- (d)** 160 to about 200 nm
- (e)** None of the above

Answer: A

67. Different wavelengths produce the experience of different:

- (a)** Colours
- (b)** Brightness
- (c)** Hues
- (d)** Lights
- (e)** None of the above

Answer: C

68. The Scottish Philosopher Thomas Reid (1710- 1796) has first developed the distinction between:

- (a)** Sensation and Attention
- (b)** Attention and Perception
- (c)** Audition and Vision
- (d)** Sensation and Perception
- (e)** Vision and Recurrent Inhibition

Answer: D

69. Helmholtz's theory of space perception centred around the concept of:

- (a) Unconscious inference
- (b) Conscious inference
- (c) Recurrent Inhibition
- (d) Mechanism of Vision
- (e) The Static sense

Answer: A

70. Rudolf Lotze (1817-1881) assumed that mind is inherently capable of:

- (a) Perceiving Space
- (b) Perceiving Size
- (c) Perceiving Depth
- (d) Perceiving Colour
- (e) Perceiving Brightness

Answer: A

71. Helmholtz's treatment of perception is the extension of:

- (a) Hering's opponent-process theory
- (b) Ladd-Franklin Theory
- (c) Lotze's local-sign theory
- (d) Recurrent inhibition theory
- (e) None of the above

Answer: C

72. Who defined apperception as the awareness of any conscious content that is clearly comprehended or grasped?

- (a) Ratliff
- (b) E. B. Titchener
- (c) J.B. Watson
- (d) Wilhelm Wundt
- (e) Kurt Lewin

Answer: D

73. Harvey Carr defined perception as the cognition of a present object in relation to:

- (a) Recurrent Inhibition
- (b) Some acts of adjustment
- (c) Some acts of stimulation
- (d) Simultaneous Contrast
- (e) None of the above

Answer: B

74. Gestalt Psychology looks upon the world as:

- (a) Psychophysical
- (b) Psychological
- (c) Physical

(d) Neuro-physiological

(e) Neurological

Answer: A

75. Which principle states that because Gestalten are isomorphic to stimulus patterns, they may undergo extensive changes without losing their identities?

(a) Simultaneous Contrast

(b) Recurrent Inhibition

(c) Transposition

(d) Phi-phenomenon

(e) Autokinetic Effect

Answer: C

76. "Memory is a dynamic process in which traces undergo progressive changes according to some principles of organization that govern original perception." This definition of memory was given by:

(a) Behaviourists

(b) Structuralists

(c) Functionalists

(d) Gestalt Psychologists

(e) Psychoanalysts

Answer: D

77. Who defined 'perception' as the process of maintaining contact with the world?

(a) Helmholtz

(b) Lorrin A. Riggs

(c) Herring

(d) Gibson

(e) None of the above

Answer: D

78. When the sense organs are oriented towards the environment and are actively seeking information, we call it—

(a) Obtained Perception

(b) Illusion

(c) Hallucination

(d) Attention

(e) Distraction

Answer: A

79. The perception which arises from the skin, nose, ears, eyes or other organs is called:

(a) Obtained Perception

(b) Illusion

(c) Hallucination

- (d) Imposed Perception
- (e) None of the above

Answer: D

80. The distinction between "Obtained and Imposed Perception" was brought out by:

- (a) Helmholtz
- (b) Herring
- (c) Franklin
- (d) Gibson
- (e) Riggs

Answer: D

81. The gestalt concept of equilibrium is expressed by the law of:

- (a) Similarity
- (b) Proximity
- (c) Continuity
- (d) Pragnaz
- (e) Good Figure

Answer: D

82. In 1915; Edgar Rubin introduced the idea of:

- (a) Figure and Ground
- (b) Phi-phenomenon
- (c) Physiological Nystagmus
- (d) Illusion
- (e) Hallucination

Answer: A

83. The 'Law of Closure' reflects the idea of striving for:

- (a) Good figure
- (b) Continuity
- (c) Completion
- (d) Good Contour
- (e) None of the above

Answer: C

84. Which law of organization in perception has become a principle of temporal contiguity in the learning theory?

- (a) The Law of Similarity
- (b) The Law of Pragnaz
- (c) The Law of Proximity
- (d) The Law of Good Figure
- (e) None of the above

Answer: C

85. The contrast between a dynamic field and a machine was brought out by:

- (a) Kurt Koffka
- (b) Wertheimer
- (c) Kurt Lewin
- (d) W. G. Kohler
- (e) Helmholtz

Answer: D

86. The Gestalt Psychologists learned their "Principles of Organization" from the study of:

- (a) Perception
- (b) Sensory Experience
- (c) Attention
- (d) Consciousness
- (e) Insightful Learning

Answer: B

87. Reinforcing factors in perceptual organization are analogous to the:

- (a) Reinforcement of a conditioned response
- (b) The Law of Effect
- (c) Both (a) and (b)
- (d) The Law of Exercise
- (e) None of the above

Answer: C

88. Wavelength is obtained by dividing the speed of the light by the:

- (a) Frequency
- (b) Brightness
- (c) Illumination
- (d) Colour
- (e) None of the above

Answer: A

89. For constancy to operate in the world of normal objects, the more distant features must be:

- (a) Perceptually expanded
- (b) Clearly Visualised
- (c) Projected in sufficient light
- (d) Clearly Spaced
- (e) None of the above

Answer: A

90. Outline or boundary of an object is called:

- (a) Contour
- (b) Figure

- (c) Ground
- (d) Brightness
- (e) None of the above

Answer: A

91. Prolongation or renewal of sensory experience after the stimulus has ceased to affect the sense organ is called:

- a) After image
- b) Illusion
- c) Hallucination
- d) Autokinetic Effect
- e) Stroboscopic Motion

Answer: A

92. A famous study on perception which has shown that the poor children overestimated the size of coins to a greater degree than wealthy children, was done by:

- (a) Bruner and Goodman
- (b) Osgood
- (c) DeBono
- (d) Murray
- (e) McGinnis

Answer: A

93. Camouflage is the deliberate confusion of:

- (a) Illusion and Hallucination
- (b) Stroboscopic Motion
- (c) Figure and Ground
- (d) Autokinetic Effect
- (e) Phi-phenomenon

Answer: C

94. The protective colouration of many animals is an example of:

- (a) Figure and Ground
- (b) Camouflage
- (c) Reversible Figures
- (d) Phi-phenomenon
- (e) Autokinetic Effect

Answer: B

95. Sense Organs in the muscles, tendons and joints tell us about the position of our limbs and the state of tension in the muscles. They serve the sense called:

- (a) Kinesthesia
- (b) Transduction
- (c) Vision
- (d) Auditory Sense

(e) None of the above

Answer: A

96. The process of converting physical energy into nervous system activity is called:

(a) Transmission

(b) Nerve Impulse

(c) Inhibition

(d) Transduction

(e) None of the above

Answer: D

97. Receptor cells convert physical energy into an electric voltage or potential called:

(a) Receptor Potential

(b) Generator Potential

(c) Vestibular Sense

(d) Spike Potential

(e) None of the above

Answer: A

98. Whether it is the receptor potential itself or some other voltage, the electrical event that triggers nerve impulses is known as the:

(a) Spike Potential

(b) Generator Potential

(c) Receptor Potential

(d) Nerve Impulse

(e) None of the above

Answer: B

99. The entire range of wavelengths is called the:

(a) Electromagnetic Spectrum

(b) Visible Spectrum

(c) Photosensitive Area

(d) Blind Spot

(e) None of the above

Answer: A

100. The tendency to perceive a line that starts in one way as continuing in the same way is called the principle of:

(a) Proximity

(b) Similarity

(c) Closure

(d) Continuation

(e) None of the above

Answer: D

101. The idea that we may be 'ready' and 'primed for' certain kinds of sensory input is known as:

- (a) Set
- (b) Cognitive Style
- (c) Sensory System
- (d) Mood
- (e) None of the above

Answer: A

102. The spatial-frequency theory maintains that form vision depends on the firing pattern of brain cells that respond to variations in the rates of change in brightness from:

- (a) One part of a visual scene to another
- (b) Temporal lobe to Frontal lobe
- (c) One part of the brain to another
- (d) Spinal cord to brain
- (e) None of the above

Answer: A

103. The receptors for taste are specialized cells grouped together in little clusters known as:

- (a) Tongue
- (b) Taste Buds
- (c) Taste Nerves
- (d) Sweet Glands
- (e) None of the above

Answer: B

104. The audible range for human beings is from about:

- (a) 20 hertz to about 20,000 hertz
- (b) 200 hertz to about 2000 hertz
- (c) 400 hertz to about 4000 hertz
- (d) 300 hertz to about 3000 hertz
- (e) 600 hertz to about 6000 hertz

Answer: A

105. On a dark night, we may hear the footsteps of a thief outside the house, whereas in reality, a cat may be passing by. This is an example of:

- (a) Hallucination
- (b) Illusion
- (c) Linear perspective
- (d) Law of Pragnaz
- (e) None of the above

Answer: B

106. In a study on the Zulu tribes of Africa, the Experimenters reasoned that the Zulu individuals

would be less susceptible to the Muller- Lyer illusion than the European people in Africa. This illustration states that:

- (a) Perception of illusions depends on the culture of the perceiver
- (b) Perception of illusion depends on the Socio-economic Status
- (c) Perception of illusions depends on the educational qualification of the individuals
- (d) Perception of illusion depends on the colour of the individuals
- (e) None of the above

Answer: A

107. Sometimes it is very difficult to find an empty seat in a dark cinema hall. We bump against people and sometimes try to sit on them after entering to the dark hall in a sunny afternoon. After a brief span of time, we may adapt to darkness and see. This is an example of:

- (a) Dark Adaptation
- (b) Perceptual Constancy
- (c) Depth Perception
- (d) Brightness Constancy
- (e) Colour Constancy

Answer: A

108. One psychologist has developed a theory of colour vision as well as a theory of hearing. Who is he?

- (a) Von Bekesy
- (b) Helmholtz
- (c) Hubel
- (d) Wiesel
- (e) N.R. Carlson

Answer: B

109. From the following, who won the Nobel Prize for his research on the mechanisms of the cochlea?

- (a) Helmholtz
- (b) Von Bekesy
- (c) E. Gardner
- (d) Schiffman
- (e) Leiman

Answer: B

110. When your friend is at a distance, certainly he looks smaller than when he is standing close to you. But you do not think that really he is smaller or shorter. The size of familiar objects does not change with distance. As your friend comes closer to you from a distance, you do not think that he is getting larger and larger. This is an illustration of:

- (a) Size Constancy
- (b) Object Constancy
- (c) Height Constancy

- (d) Depth Constancy
- (e) Binocular Vision

Answer: A

111. The mechanism of reflex action is called:

- (a) Reflexology
- (b) Reflex Path
- (c) Reflex Arc
- (d) Reflexon
- (e) None of the above

Answer: C

112. Figure-ground relationship was first established by:

- (a) Gestalt Psychologists
- (b) Behaviourists
- (c) Structuralists
- (d) Functionalists
- (e) None of the above

Answer: A

113. Closure is a basic principle of:

- (a) Perceptual defence
- (b) Perceptual Organization
- (c) Depth Perception
- (d) Phi-phenomenon
- (e) None of the above

Answer: B

114. Personal factors in perception are otherwise known as:

- (a) Functional factors in perception
- (b) Motivational factors in perception
- (c) Social factors in perception
- (d) Cultural factors in perception
- (e) None of the above

Answer: A

115. The gap between Cornea and lens is filled with:

- (a) Amino Acid
- (b) Vitreous Humour
- (c) Unknown Fluid
- (d) Aqueous Humour
- (e) None of the above

Answer: D

116. The image of an object falling on the blind spot of the eye :

- (a) Will be visible
- (b) Will not be visible
- (c) Automatically vanishes
- (d) Is not clear
- (e) None of the above

Answer: B

117. The gap between cornea and lens is known as:

- (a) Posterior Chamber
- (b) Anterior Chamber
- (c) Inner Chamber
- (d) Secular Chamber
- (e) None of the above

Answer: B

118. The innermost layer of the eye is called:

- (a) Cornea
- (b) Retina
- (c) Blind Spot
- (d) Fovea
- (e) None of the above

Answer: B

119. The point at which the optic nerve gets out of the retina is called the:

- (a) Light Spot
- (b) Fovea
- (c) Blind Spot
- (d) Yellow Spot
- (e) None of the above

Answer: C

120. A person who has no cones at the fovea:

- (a) Is a colour blind
- (b) Is very often a colour blind
- (c) Is not able to see yellow colour at all
- (d) Is deprived of black and white vision
- (e) None of the above

Answer: A

121. Perception without sensory stimulus is called:

- (a) Illusion
- (b) Phi-phenomenon
- (c) Hallucination

- (d) Perceptual Defence
- (e) Perceptual Constancy

Answer: C

122. As the eyes become adapted to dark at one particular point, red colours begin to darken and the green and blues become brighter. This change is known as:

- (a) Duplicity theory of Colour Vision
- (b) Herring's theory of Colour Vision
- (c) Purkinje Effect
- (d) Perceptual Constancy
- (e) None of the above

Answer: C

123. The classic example of perceiving a coil of rope in darkness as a snake depicts about:

- (a) Hallucination
- (b) Illusion
- (c) Phi-phenomenon
- (d) Autokinetic Effect
- (e) Perceptual Constancy

Answer: B

124. Meaningful sensation is otherwise known as:

- (a) Attention
- (b) Sensation
- (c) Emotion
- (d) Perception
- (e) None of the above

Answer: D

125. Size judgement is based on:

- (a) Retinal Image
- (b) Clarity of Object
- (c) Object Size
- (d) Distance Information
- (e) None of the above

Answer: D

126. "Perceived Size" approaches "physical size" when:

- (a) Depth and Distance Cues are available
- (b) Object is small
- (c) Information is Minimum
- (d) Object is Old
- (e) None of the above

Answer: A

127. Which one of the following happens to be an important factor in selectivity of attention?

- (a) Attitude
- (b) Interest
- (c) Boredom
- (d) Concentration
- (e) None of the above

Answer: B

128. An incorrect interpretation of the stimulus input is called:

- (a) Illusion
- (b) Hallucination
- (c) Sensation
- (d) Perception
- (e) Attention

Answer: A

129. Each receptor requires some minimum level of energy to excite it. That minimum energy is called:

- (a) Minimum Threshold
- (b) Absolute Threshold
- (c) Boundary Threshold
- (d) Contour Threshold
- (e) None of the above

Answer: B

130. A general principle of perception of form is the law of Prägnanz which was termed by:

- (a) Behaviourists
- (b) Structuralists
- (c) Functionalists
- (d) Gestalt Psychologists
- (e) None of the above

Answer: D

131. Which one of the following is a stimulus variable in the determination of attending?

- (a) Interest
- (b) Attitude
- (c) Size
- (d) Aptitude
- (e) None of the above

Answer: C

132. The perception of the whiteness of the snow even though the night is dark can be explained on the basis of:

- (a) Purkinje Effect
- (b) Dark Adaptation
- (c) Brightness Constancy
- (d) Perceptual Defence
- (e) None of the above

Answer: C

133. Perception of "Figure and Ground" results from:

- (a) Experience
- (b) Sensation Pattern
- (c) Trial and Error
- (d) The structure of Nervous System
- (e) None of the above

Answer: B

134. An one-eyed person would lose precision in the perception of:

- (a) Height
- (b) Weight
- (c) Colour
- (d) Depth
- (e) None of the above

Answer: D

135. The perceptual principle of 'proximity' states that:

- (a) When stimuli are close together they tend to be grouped
- (b) The nearer an object is, the more likely it is to be perceived
- (c) The closer a stimulus is, the more likely it is to be attended
- (d) Stimuli coming from equal distance are perceived as part of the same figure
- (e) None of the above

Answer: A

136. Even though parallel, the rails appear to be meeting at a distance. This is a bright illustration of:

- (a) Linear Perspective
- (b) Distance Perception
- (c) Visual Illusion
- (d) Aerial perspective
- (e) None of the above

Answer: C

137. In a normal waking state, if an individual gets certain sensation with particular stimulus which is not available to others, this person is said to have:

- (a) An illusion
- (b) A phi-phenomenon

- (c) A sensation
- (d) A hallucination
- (e) None of the above

Answer: D

138. Figure and Ground perception results from:

- (a) Attention Pattern
- (b) Sensation pattern
- (c) Perception Pattern
- (d) Emotional pattern
- (e) None of the above

Answer: B

139. Perception is a:

- (a) Psychological Process
- (b) Physiological Process
- (c) Physical Process
- (d) Psycho-physiological Process
- (e) None of the above

Answer: D

140. We perceive a square as a square in whatever position it is held, this constancy in perception relates to:

- (a) Size
- (b) Depth
- (c) Shape
- (d) Height
- (e) Weight

Answer: C

141. Illusion is the:

- (a) False perception
- (b) Right perception
- (c) Wrong perception
- (d) Delayed Perception
- (e) None of the above

Answer: C

142. Hallucinations occur to individuals suffering from:

- (a) Hysteria
- (b) Epilepsy
- (c) Peptic Ulcer
- (d) Schizophrenia
- (e) Asthma

Answer: D

143. A normal individual may experience hallucinations after taking drugs like:

- (a) Heroin
- (b) Morphine
- (c) Seconel
- (d) Pethidine
- (e) None of the above

Answer: A

144. The tendency to see the immobility of objects when they move about is called:

- (a) Location Constancy
- (b) Size Constancy
- (c) Shape Constancy
- (d) Depth Constancy
- (e) None of the above

Answer: A

145. A contour is the boundary between:

- (a) A figure and its ground
- (b) A figure and another figure's ground
- (c) Two similar figures
- (d) Two dissimilar figures
- (e) None of the above

Answer: A

146. An object that has been constituted perceptually as a permanent and stable thing continues to be perceived as such, regardless of illumination, position, distance etc. This kind of stability of the environment experienced by human beings is termed as:

- (a) Depth Constancy
- (b) Perceptual Constancy
- (c) Size Constancy
- (d) Shape constancy
- (e) None of the above

Answer: B

147. Whenever an object appears to maintain its shape despite marked changes in the retinal image, it is known as:

- (a) Size Constancy
- (b) Depth Constancy
- (c) Shape Constancy
- (d) Height Constancy
- (e) None of the above

Answer: C

148. A red ball looks red in broad daylight as well as in dark night. This is due to:

- (a) Light Constancy
- (b) Brightness Constancy
- (c) Size Constancy
- (d) Colour Constancy
- (e) None of the above

Answer: A

149. Soldiers dressed in colours of uniform that merge with the background is called:

- (a) Colour Matching
- (b) Colour Constancy
- (c) Brightness Constancy
- (d) Camouflage
- (e) None of the above

Answer: D

150. When there is a deliberate confusion of figure and ground and it is difficult to organise form and distinguish objects from one another, it is called:

- (a) Camouflage
- (b) Phi-phenomenon
- (c) Colour Constancy
- (d) Brightness Constancy
- (e) None of the above

Answer: A

151. Which principle/law of organization in perception states that there is a tendency to organize stimuli to make a balanced or symmetrical figure that includes all parts?

- (a) Law of Similarity
- (b) Law of Symmetry
- (c) Law of Proximity
- (d) Law of Closure
- (e) Law of Prägnanz

Answer: B

152. Stimuli that make the fewest interruptions in contour also tend to be grouped together. The tendency to organize the fragmentary stimuli into a familiar pattern is called the principle of:

- (a) Similarity
- (b) Proximity
- (c) Closure
- (d) Continuation
- (e) Prägnanz

Answer: D

153. "Why do things look the way they do"? – This question was asked by the Gestalt Psychologist:

- (a) W. G. Kohler
- (b) M. Wertheimer
- (c) Kurt Lewin
- (d) K. Koffka
- (e) None of the above

Answer: D

154. An illusion is not a trick or misperception. It is a/an:

- (a) Attention
- (b) Sensation
- (c) Perception
- (d) Emotion
- (e) Motive

Answer: C

155. "The whole (perception) is more than the sum of its parts (Sensory inputs)". This statement was given by:

- (a) Behaviourists
- (b) Gestalt Psychologists
- (c) Functionalists
- (d) Psychoanalysts
- (e) Structuralists

Answer: B

156. The events, we perceive clearly, are at the:

- (a) Margin
- (b) Centre
- (c) Side
- (d) Focus
- (e) None of the above

Answer: D

157. Attention is the term given to the processes that select certain inputs for inclusion in the focus of:

- (a) Sensation
- (b) Consciousness
- (c) Unconsciousness
- (d) Experience
- (e) None of the above

Answer: B

158. The most fundamental process in form perception is the recognition of:

- (a) A figure on a ground
- (b) A picture without background

- (c) A figure without ground
- (d) The contour of a figure
- (e) None of the above

Answer: A

159. Which principle of perceptual organization makes our perceived world of form more complete than the sensory stimulation that is presented?

- (a) The Law of Pragnaz
- (b) The Law of Closure
- (c) The Law of Similarity
- (d) The Law of Proximity
- (e) The Law of Continuity

Answer: B

160. The device which is used in perceptual experiments for the very brief presentation of stimuli is known as:

- (a) Psycho galvanometer
- (b) Tachistoscope
- (c) Aesthesiometer
- (d) Electroencephalograph
- (e) Polygraph

Answer: B

161. Coal looks black even in very bright sunlight, while snow continues to look white even at night. This is due to:

- (a) Colour Constancy
- (b) Size Constancy
- (c) Shape Constancy
- (d) Constancy of Brightness
- (e) Colour Reflection

Answer: D

162. Monocular Cues are those which can operate when:

- (a) Two eyes are looking
- (b) Both eyes are invalid
- (c) Only one eye is looking
- (d) Only one eye is invalid
- (e) None of the above

Answer: C

163. A gradient is a continuous change:

- (a) Without abrupt transitions
- (b) With abrupt transitions
- (c) With highest stimulating agent

(d) With lowest stimulating agent

(e) None of the above

Answer: A

164. Retinal disparity is the difference in the images falling on:

(a) The retinas of the two eyes

(b) The foveas of the two eyes

(c) The blind spots of the two eyes

(d) The corneas of the two eyes

(e) None of the above

Answer: A

165. Who conducted a pioneering experiment to show that "Value" has a considerable effect on perception?

(a) Bruner and Goodman

(b) Osgood

(c) Dember

(d) Carter

(e) Postman

Answer: A

166. Which one of the following is a term given to the processes that select certain inputs for inclusion in the focus of experience?

(a) Sensation

(b) Emotion

(c) Affection

(d) Attention

(e) Conation

Answer: D

167. Which are the well known examples of the transformations and elaborations of sensory input that occur in the process of perceiving the world?

(a) Hallucinations

(b) Sensations

(c) Illusions

(d) Conation

(e) Attention

Answer: C

168. Who has first pointed out that the 'Whole' is more than the sum total of its parts?

(a) Kohler

(b) Wertheimer

(c) Kurt Lewin

(d) Kurt Koffka

(e) Otto Rank

Answer: D

169. Which one of the following is formed whenever a marked difference occurs in the brightness or colour of the background?

(a) Sizes

(b) Shapes

(c) Contours

(d) Sets

(e) None of the above

Answer: C

170. Perceived motion also occurs without any energy movement across the receptor surface. This type of motion is called:

(a) Constant Motion

(b) Retinal Disparity

(c) Real motion

(d) Apparent Motion

(e) None of the above

Answer: D

171. Which one of the following is an increase in the activity to extract information from the environment as a result of experience or practice with the stimulation coming from it?

(a) Convergence

(b) Divergence

(c) Perceptual Learning

(d) Plasticity of Perception

(e) None of the above

Answer: C

172. The ability to read other people's thoughts is called

(a) Precognition

(b) Telepathy

(c) Psychokinesis

(d) Clairvoyance

(e) None of the above

Answer: B

173. "We perceive things as we are". This statement emphasises upon:

(a) Functional Factors in Perception

(b) Objective Patterns in Perception

(c) Organizational factors in perception

(d) Voluntary Attention

(e) Involuntary Attention

Answer: A

174. The fact that the moon looks larger near the horizon than high in the sky is called the:

- (a) Muller-Lyer Illusion
- (b) Jastrow Illusion
- (c) Ponzo illusion
- (d) Moon Illusion
- (e) Height-Width Illusion

Answer: D

175. One of the causes of the mental set is:

- (a) Mood
- (b) Emotion
- (c) Sensation
- (d) Habit
- (e) Span

Answer: D

176. The old saying "Seeing is believing" does not hold good in case of:

- (a) Hallucination
- (b) Illusion
- (c) Affection
- (d) Conation
- (e) Stimulation

Answer: B

177. The stimulus is explicit in:

- (a) Hallucination
- (b) Illusion
- (c) Affection
- (d) Conation
- (e) Stimulation

Answer: B

178. In illusion, the stimulation is usually external, while the stimulations in hallucinations are:

- (a) In the person himself
- (b) In the stimulus itself
- (c) Both in stimulus and perceiver
- (d) In the external world
- (e) None of the above

Answer: A

179. Muller-Lyer illusion is:

- (a) Also a hallucination Jastrow illusion
- (b) An individual illusion
- (c) Otherwise called as
- (d) An optical illusion
- (e) None of the above

Answer: D

180. We are able to separate forms from the general ground in our visual perception only because we can perceive:

- (a) Size
- (b) Shape
- (c) Side
- (d) Contours
- (e) Colours

Answer: D

181. The thought perception without any known means of communication is known as:

- (a) Preognition
- (b) Psychokinesis (PK)
- (c) Clairvoyance
- (d) Telepathy
- (e) None of the above

Answer: D

182. The perception of future events or happenings through dreams or hallucinations is known as:

- (a) Psychokinesis (PK)
- (b) Clairvoyance
- (c) Precognition
- (d) Telepathy
- (e) None of the above

Answer: C

183. Attention divides our perceived world into:

- (a) Focus and Margin
- (b) Margin and Centre
- (c) Nucleus and Focus
- (d) Focus and centre
- (e) None of the above

Answer: A

184. The tendency to see the colour of a familiar object as the same, regardless of the actual light conditions is called:

- (a) Colour Constancy
- (b) Brightness Constancy

- (c) Light Constancy
- (d) Dark Constancy
- (e) None of the above

Answer: A

185. By comparing experimental outcomes, which model provides more accurate predictions?

- (a) Averaging Model
- (b) Additive Model
- (c) Self-attribution Model
- (d) Personal-attribution Model
- (e) None of the above

Answer: A

186. Experimental evidences suggest that people use a weighted averaging model to combine:

- (a) Type information
- (b) Attribute information
- (c) Non-common Effects
- (d) Trait information
- (e) None of the above

Answer: D

187. The way in which individuals focus on specific traits to form an overall impression of others is known as:

- (a) Social perception
- (b) Perceptual organization
- (c) Person Perception
- (d) Phi-phenomenon
- (e) Perceptual Constancy

Answer: C

188. Averaging models suggest that the mean of the information is:

- (a) Most appropriate
- (b) Not most appropriate
- (c) Predictable
- (d) Unpredictable
- (e) None of the above

Answer: A

189. "Schemas" are organized bodies of information stored in:

- (a) Perceptual Field
- (b) Cognitive Field
- (c) Emotion field
- (d) Memory
- (e) Sensation

Answer: D

190. In case of personality traits, we organize information into schemas called:

- (a) Common Effects
- (b) Non-common Effects
- (c) Prototypes
- (d) Somatotypes
- (e) Stereotypes

Answer: C

191. Prototypes are schemas that organize a group of personality traits into a/an:

- (a) Meaningful Personality Type
- (b) Meaningless Personality Type
- (c) Emotional Trauma
- (d) Avoidance conflicting situation
- (e) None of the above

Answer: A

192. The personality types that we derive in the case of person perception are organized into schemas known as:

- (a) Prototypes
- (b) Stereotypes
- (c) Somatotypes
- (d) Phi-phenomenon
- (e) None of the above

Answer: A

193. Nancy Cantor and Walter Mischel suggest a frequently held prototype concerns a person labelled on a general level as:

- (a) "Permitted"
- (b) "Submitted"
- (c) "Dedicated"
- (d) "Committed"
- (e) None of the above

Answer: D

194. At what level, the prototype consists of different types of committed individuals like monks, nuns and activists?

- (a) Personal Level
- (b) Environmental Level
- (c) Subordinate Level
- (d) Secondary Level
- (e) Primary Level

Answer: C

195. Information processing capabilities are enhanced through the use of:

- (a) Stereotypes
- (b) Prototypes
- (c) Prejudices
- (d) Attitudes
- (e) None of the above

Answer: B

196. With any schema, prototypes help us to organize:

- (a) The social world around us
- (b) The psychological world around us
- (c) The psychophysical world around us
- (d) The physical world around us
- (e) None of the above

Answer: A

197. Covariation principle suggests that we try to analyse the relationships among a multitude of possible cause-and-effect variables inherent in a situation:

- (a) To pin point a cause of behaviour
- (b) To find out the cause of perceptual errors
- (c) To find out cause of sensation errors
- (d) To find out the cause of social perception
- (e) None of the above

Answer: A

198. The Covariation Principle" states that the cause that will be chosen to explain an effect a cause that is present when the effect is also absent. This principle was introduced by:

- (a) T. D. Wilson
- (b) Keith Davis
- (c) Harold Kelley
- (d) E.E. Jones
- (e) I.J. Stone

Answer: C

199. Consensus is the degree to which other people react similarly in the:

- (a) Same situation
- (b) Different situation
- (c) Different emotional setup
- (d) Different sensational setup
- (e) None of the above

Answer: A

200. Consistency refers to the degree to which the actor behaves the same way in :

- (a) Different situations

- (b) Similar situations
- (c) Both similar and dissimilar situations
- (d) Other situations
- (e) None of the above

Answer: D

201. "A goal refers to some substance, objects or environmental condition capable of reducing or temporarily eliminating the complex of internal conditions which initiated action." This definition of "goal" was given by:

- (a) Janis & Mann (1977)
- (b) Ruch (1970)
- (c) Solomon and Corbit (1974)
- (d) Neal Miller (1959)
- (e) None of the above

Answer: B

202. Cannon called the concept of internal equilibrium and function as:

- (a) Imprinting
- (b) Instinct
- (c) Homeostasis
- (d) Substitute Behaviour
- (e) None of the above

Answer: C

203. The expectations or goal that one sets to achieve in future keeping in view his past performance is called:

- (a) Valence
- (b) Vector
- (c) Vigilance
- (d) Level of Aspiration
- (e) None of the above

Answer: D

204. "The need for achievement" was first defined largely on the basis of clinical studies done by:

- (a) Murray (1938)
- (b) Janis and Mann (1977)
- (c) Solomon (1974)
- (d) Corbit (1974)
- (e) None of the above

Answer: A

205. The achievement motivation theory of McClelland is explained in terms of:

- (a) "Affective Arousal model of motivation"
- (b) Action Specific energy

- (c) Innate Releasing Mechanism
- (d) Displacement Behaviour
- (e) Opponent Process Theory

Answer: A

206. Intrinsic Motivational Theory was propounded by:

- (a) Mc Clelland
- (b) Maslow
- (c) Harry Harlow
- (d) Solomon
- (e) Corbit

Answer: C

207. Psychoanalytic theory of motivation was developed by:

- (a) Sigmund Freud
- (b) Maslow
- (c) Harry Harlow
- (d) McClelland
- (e) None of the above

Answer: A

208. The goals which the person tries to escape are called:

- (a) Positive goals
- (b) Vectors
- (c) Valences
- (d) Negative goals
- (e) None of the above

Answer: D

209. A person's need for feeling competent and self-determining in dealing with his environment is called:

- (a) Intrinsic Motivation
- (b) Instinct
- (c) Imprinting
- (d) Coolidge Effect
- (e) None of the above

Answer: A

210. When the motive is directed towards goals external to the person such as money or grade, it is called:

- (a) Extrinsic Motivation
- (b) Intrinsic Motivation
- (c) Imprinting
- (d) Instinct

(e) None of the above

Answer: A

211. Steers and Porter (1975) in their text entitled "Motivation and work behaviour" identified:

- (a)** Two major components of motivation
- (b)** Four major components of motivation
- (c)** Five major components of motivation
- (d)** Three major components of motivation
- (e)** None of the above

Answer: D

212. The conditions which influence the arousal, direction and maintenance of behaviours relevant in work settings are called:

- (a)** Work Motivation
- (b)** Drive stimuli
- (c)** Substitute behaviour
- (d)** Consummatory behaviour
- (e)** None of the above

Answer: A

213. Intrinsic motivation as currently conceived is championed by:

- (a)** Janis (1977)
- (b)** Solomon (1974)
- (c)** Deci (1975)
- (d)** Mann (1977)
- (e)** Corbit (1974)

Answer: C

214. Most of the research on intrinsic motivation has concentrated on the interaction between:

- (a)** Intrinsic and extrinsic rewards
- (b)** Instinct and imprinting
- (c)** Action specific energy and balance sheet grid
- (d)** Substitute behaviour and consummatory behaviour
- (e)** None of the above

Answer: A

215. An individual's affective orientation towards particular outcomes is called the:

- (a)** Vector of the outcome
- (b)** Approach gradient of the outcome
- (c)** Valence of the outcome
- (d)** Avoidance gradient of the outcome
- (e)** None of the above

Answer: C

216. Dipboye (1977) distinguished between the strong and weak version of:

- (a) Achievement theory
- (b) Two-factor theory
- (c) Valence theory
- (d) Consistency theory
- (e) None of the above

Answer: D

217. Motives are:

- (a) Internal sources of behaviour
- (b) External sources of behaviour
- (c) Natural sources of behaviour
- (d) Both subjective and objective sources of behaviour
- (e) None of the above

Answer: A

218. Motives move a person from:

- (a) Within
- (b) Outside
- (c) Beginning
- (d) Birth
- (e) Death

Answer: A

219. Literally, motivation means the process of inducing:

- (a) Movement
- (b) Excitement
- (c) Tension
- (d) Conflict
- (e) None of the above

Answer: A

220. Motivation is defined as a state of the organism in which bodily energy is mobilised and selectively directed towards parts of the:

- (a) Stimulus
- (b) Response
- (c) World
- (d) Environment
- (e) None of the above

Answer: D

221. "Mobilisation of bodily energy" is otherwise known as:

- (a) Drive
- (b) Need

- (c) Motive
- (d) Incentive
- (e) None of the above

Answer: A

222. The selected part of environment refers to the end results of behaviour sequence which are known as:

- (a) Aims
- (b) Objectives
- (c) Goals
- (d) Destinations
- (e) None of the above

Answer: C

223. Goal refers to:

- (a) Directional aspects of behaviour
- (b) End result of instrumental behaviour
- (c) Destination after conscious activities
- (d) Occasional halts
- (e) None of the above

Answer: A

224. When a motive is aroused and the organism is driven to a goal, a condition is produced within the organism called:

- (a) Conflict
- (b) Tension
- (c) Anxiety
- (d) Jealousy
- (e) None of the above

Answer: B

225. The tension increases when the goal is:

- (a) Free
- (b) Easy to achieve
- (c) Obstructed
- (d) Static
- (e) None of the above

Answer: C

226. Those internal mechanisms of the body which, by controlling numerous highly complicated physiological processes, keep it in a state of equilibrium are known as:

- (a) Homeostases
- (b) Nervous System
- (c) Nutrition

(d) None of the above

Answer: A

227. Homeostasis is the overall term for equilibrium preserving tendencies with an organism by which:

(a) Neurophysiological condition is maintained

(b) Psychological condition is maintained

(c) Physiological condition is maintained

(d) Psychophysical condition is maintained

(e) None of the above

Answer: A

228. Curiosity comes under:

(a) Social Motives

(b) Personal motives

(c) Non-homeostatic motives

(d) Both (b) and (c)

(e) None of the above

Answer: B

229. Sex is a:

(a) Biological motive

(b) Physiological motive

(c) Both (a) and (b)

(d) Psychological motive

(e) None of the above

Answer: C

230. Maslow's idea about the structure of needs is known as:

(a) Self-actualisation theory of motivation

(b) Physiological theory of motivation

(c) Psychological theory of motivation

(d) Psychophysical theory of motivation

(e) None of the above

Answer: A

231. "Intrinsic motivation theory" was developed by:

(a) Halow (1950)

(b) Sigmund Freud (1902)

(c) Mark and Ervin (1970)

(d) Dollard (1939)

(e) Bandura (1973)

Answer: A

232. A person who is motivated displays:

- (a) Unconscious Behaviour
- (b) Conscious Behaviour
- (c) Hapazard Behaviour
- (d) Goal-directed Behaviour
- (e) Erratic Behaviour

Answer: D

233. The process of maintaining the biochemical balance or equilibrium throughout human body is referred as:

- (a) Osmosis
- (b) Circulation
- (c) Homeostasis
- (d) Nervous System
- (e) Diffusion

Answer: C

234. Which one of the following is not a psychological motive?

- (a) Need for achievement
- (b) Need for affection
- (c) Need for belonging
- (d) Need for Oxygen
- (e) None of the above

Answer: D

235. 'The competition of two or more contradictory impulses, usually accompanied by emotional tension is called a/an:

- (a) Conflict
- (b) Anxiety
- (c) Neurosis
- (d) Psychosis
- (e) Phobia

Answer: A

236. An object or thing which directs or stimulates behaviour:

- (a) Instinct
- (b) Incentive
- (c) Need
- (d) Motive
- (e) Drive

Answer: B

237. A pituitary hormone associated with the secretion of milk is known as:

- (a) Prolactin
- (b) Adrenalin

- (c) Estrogens
- (d) Progesterones
- (e) Insulin

Answer: A

238. A motive that is primarily learned rather than based on biological needs is known as:

- (a) Physical Motive
- (b) Psychological Motive
- (c) Neurophysiological Motive
- (d) Psychological Motive
- (e) None of these

Answer: D

239. During 1950s, psychologists began to be disenchanted with the drive reduction theory of motivation as an explanation of:

- (a) All types of behaviour
- (b) Only certain types of physiological behaviour
- (c) Only certain types of psychological behaviour
- (d) Both physiological and psychological behaviour
- (e) Social behaviour

Answer: A

240. The hypothalamus plays an important role in the regulation of:

- (a) Food intake
- (b) Water intake
- (c) Alcohol intake
- (d) Both food and water intake
- (e) None of the above

Answer: A

241. Lateral hypothalamus (LH) is otherwise known as:

- (a) Stimulating centre
- (b) Circulatory Centre
- (c) Feeding Centre
- (d) Water centre
- (e) None of the above

Answer: C

242. Research evidence indicated that ventromedial hypothalamus (VMH):

- (a) Facilitates eating
- (b) Expedites eating
- (c) Both facilitates and
- (d) Inhibits eating expedites eating
- (e) None of the above

Answer: D

243. Electrical stimulation of ventromedial hypothalamus (VMH) cells:

- (a) Inhibits eating
- (b) Facilitates eating
- (c) Expedites eating
- (d) Both expedites and inhibits eating
- (e) None of the above

Answer: A

244. Injections of glucose (which raise blood sugar level):

- (a) Facilitate eating
- (b) Expedite eating
- (c) Both expedite and facilitate eating
- (d) Inhibit eating
- (e) None of the above

Answer: D

245. Injections of insulin (which lower blood sugar level):

- (a) Increase food intake
- (b) Decrease food intake
- (c) Expedite food intake
- (d) Facilitate food intake
- (e) None of the above

Answer: A

246. Studies indicated that the hypothalamus contains cells (glucoreceptors) sensitive to the rate of which:

- (a) Glucose passes through them
- (b) Glucose stimulates them
- (c) Glucose inhibits them
- (d) Glucose both stimulates and inhibits them
- (e) None of the above

Answer: A

247. An empty stomach produces the periodic contractions of muscles in the stomach wall which we identify as:

- (a) Stomach ache
- (b) Stomach pain
- (c) Stomach ailment
- (d) Hunger Pangs
- (e) None of these

Answer: D

248. Obesity is thought to stem from disturbances during the:

- (a) Phallic stage of psychosexual development
- (b) Oral and Anal stages of psychosexual development
- (c) Genital stage of psychosexual development
- (d) Latency period of psychosexual development
- (e) None of these

Answer: B

249. Dehydration of the osmoreceptors can be produced by depriving the organism of:

- (a) Food
- (b) Water
- (c) Blood
- (d) Sugar
- (e) Alcohol

Answer: B

250. Water deficit in the body increases the concentration of:

- (a) Potassium
- (b) Insulin
- (c) Sugar
- (d) Sodium
- (e) Glucose

Answer: D

251. Realistic anxiety is otherwise known as:

- (a) Objective anxiety
- (b) Subjective anxiety
- (c) Psychic anxiety
- (d) Ego defenses

Answer: A

252. In "moral anxiety", ego's dependence upon:

- (a) Superego is found
- (b) Id is found
- (c) Sex is found
- (d) Unconscious is found

Answer: A

253. Neurotic anxiety is one in which there occurs emotional response to a threat to ego that the impulses may break through into:

- (a) Consciousness
- (b) Unconsciousness
- (c) Subconsciousness
- (d) Super ego

Answer: A

254. Sometimes the superego gives threats to punish the ego. This causes an emotional response called:

- (a) Moral Anxiety
- (b) Realistic Anxiety
- (c) Objective Anxiety
- (d) Neurotic Anxiety

Answer: A

255. Always we want to protect ego from the ensuring anxiety. For doing this, ego adopts some strategies which are called:

- (a) Defense mechanisms
- (b) Sex energy
- (c) Instincts
- (d) Dreams

Answer: A

256. Defense mechanisms help the person in protecting ego from open expression of id impulses and opposing:

- (a) Superego directives
- (b) Death Instinct
- (c) Lie Instinct
- (d) Unconscious mind

Answer: A

257. Defense mechanisms operate at unconscious level. They occur without awareness of the individual. Hence they are:

- (a) Self-explanatory
- (b) Self-deceptive
- (c) Self-expressive
- (d) Self-dependant

Answer: B

258. A child scolded by his father may hit his younger siblings. This is an example of:

- (a) Displacement
- (b) Rationalization
- (c) Regression
- (d) Repression

Answer: A

259. "A young woman after fighting with her husband returned to her parent's home only to allow her parents to "baby" her and fulfil her every wish like that of a child". This is an illustration of:

- (a) Repression
- (b) Regression
- (c) Fixation
- (d) Reaction Formation

Answer: B

260. The last stage of psychosexual development is:

- (a) Phallic Stage
- (b) Genital Stage
- (c) Oral Stage
- (d) Anal Stage

Answer: B

261. Sigmund Freud has regarded the first three stages of psychosexual development i.e., the period of 5 or 6 years of life, to be decisive for the formation of:

- (a) Intelligence
- (b) Personality
- (c) Emotion
- (d) Ego

Answer: B

262. In the book "Group Psychology and the Analysis of the Ego", Freud has explained the formation of:

- (a) Personality
- (b) Group
- (c) Society
- (d) Gang

Answer: B

263. Freud had published a book "Totem and Taboo" in 1913. By publishing this book, he has shown his concern for:

- (a) Social Psychology
- (b) Abnormal Psychology
- (c) Industrial Psychology
- (d) Child Psychology

Answer: A

264. Who viewed, "A person is born with sex, lives in sex and finally dies in sex" ?

- (a) J. Herbart
- (b) Sigmund Freud
- (c) Alfred Adler
- (d) C.G. Jung

Answer: B

265. Who said that after birth, the child has a strong frustrating experience?

- (a) Sigmund Freud (1917)
- (b) Otto Rank (1929)
- (c) Alfred Adler (1920)
- (d) C.G. Jung (1919)

Answer: B

266. "Penis envy" is found in girls in:

- (a) Oral Stage
- (b) Anal Stage
- (c) Genital Stage
- (d) Phallic Stage

Answer: D

267. Homosexuality is a derivative of:

- (a) Electra Complex
- (b) Oedipus Complex
- (c) Libido
- (d) Death Instinct

Answer: B

268. The Oral, Anal and Phallic stages of Psychosexual Development are called:

- (a) Preenatal Period
- (b) Sexual Genesis
- (c) Life Instinct
- (d) Latency Period

Answer: A

269. The genital stage is generally characterized by object choices rather than by:

- (a) Libido
- (b) Narcissism
- (c) Personality
- (d) Superego

Answer: B

270. In Anal Stage of Psychosexual Development, pleasure is derived from:

- (a) Thinking
- (b) Libido
- (c) Emotion
- (d) Expulsion and Retention

Answer: D

271. The "Super ego" is the equivalent of what is more commonly known as the:

- (a) Conscience

- (b)** Personality
- (c)** Libido
- (d)** Narcissism

Answer: A

272. The psychoanalysis performed in a controlled setting is known as:

- (a)** Psychotherapy
- (b)** Chemotherapy
- (c)** Hypoanalysis
- (d)** Hyperanalysis

Answer: C

273. A state of deep unconsciousness, with non-responsiveness to stimulation, is known as:

- (a)** Coma
- (b)** Fixation
- (c)** Hypnotism
- (d)** Trauma

Answer: A

274. In 1895, Freud and Breuer published a book entitled:

- (a)** Studies in Hysteria
- (b)** Interpretation of Dreams
- (c)** Moses and Menotheism
- (d)** Psychopathology of Everyday Life

Answer: A

275. Studies of Freud and Breuer reported successful treatment of hysterical symptoms by a method called:

- (a)** Hypnosis
- (b)** Free Association
- (c)** Catharsis
- (d)** Dream Analysis

Answer: C

276. The success of the cathartic method was regarded by Freud as evidence of the:

- (a)** Unconscious
- (b)** Conscious
- (c)** Subconscious
- (d)** Libido

Answer: A

277. From the experiences in hypnotism and catharsis, Freud's theory of:

- (a)** Unconscious was derived
- (b)** Conscious was derived

- (c) Narcissism was derived
- (d) Dream was derived

Answer: A

278. Dreams represent demands or wishes stemming from the:

- (a) Unconscious
- (b) Conscious
- (c) Preconscious
- (d) Death Instinct

Answer: A

279. In a special book, Freud analyzed the psychology of error and found the source of errors in the conflict between:

- (a) Ego and Super ego
- (b) Unconscious wish and conscious censorship
- (c) Conscious wish and unconscious censorship
- (d) Ego and Preconscious

Answer: B

280. The parts of the body that are capable of reacting to sexual stimuli are called:

- (a) Erogenic Zones
- (b) Abnormal Zones
- (c) Sensitive Zones
- (d) Secular Zones

Answer: A

281. The main erogenic zone of our body is:

- (a) Mouth
- (b) Genitals
- (c) Anal Zones
- (d) Lips

Answer: B

282. According to Freud, the entire activity of men is bent upon procuring pleasure and avoiding pain. This activity is controlled by:

- (a) Reality Principle
- (b) Pleasure Principle
- (c) Primary Narcissism
- (d) Secondary Narcissism

Answer: B

283. The urethral development stage is an introductory period to the:

- (a) Oral Stage
- (b) Phallic Stage

- (c) Genital Stage
- (d) Latency Stage

Answer: B

284. The very term “Phallic” is derived from “Phallos”, which means:

- (a) Penis in erection
- (b) Sexual urge
- (c) Ego-conflict
- (d) Self-Love

Answer: A

285. Urethral eroticism is mainly:

- (a) Autoerotic
- (b) Conscious
- (c) Unconscious
- (d) Egocentric

Answer: A

286. According to Freud, the negative Oedipus complex may lead to:

- (a) Heterosexuality
- (b) Homosexuality
- (c) Narcissism
- (d) Castration

Answer: B

287. The idea of developmental stages was borrowed by Freud from:

- (a) Biology
- (b) Sociology
- (c) Anthropology
- (d) Physics

Answer: A

288. The diversion of a part of the sexual energy into non-sexual activities is called:

- (a) Repression
- (b) Regression
- (c) Rationalization
- (d) Sublimation

Answer: D

289. The term “defense mechanism” was introduced by:

- (a) Freud in 1894
- (b) Jung in 1902
- (c) Alfred Adler in 1905
- (d) Sullivan in 1935

Answer: A

290. Moving away from the reality is called the mechanism of:

- (a) Withdrawal
- (b) Denial
- (c) Daydream
- (d) Introjection

Answer: B

291. The stimulation of a muscle fibre by a motor neuron occurs at the

- (a) myofibril
- (b) transverse tubules
- (c) neuromuscular junction
- (d) sarcoplasmic reticulum

Answer: (c)

292. An injury sustained by the hypothalamus is most likely to interrupt

- (a) coordination during locomotion
- (b) short term memory
- (c) regulation of body temperature
- (d) executive function like decisionmaking

Answer: (c)

293. In humans, the Alzheimer disease is linked with the deficiency of

- (a) acetylcholine
- (b) dopamine
- (c) glutamic acid
- (d) Gamma Amino Butyric Acid (GABA)

Answer: (a)

294. What is the person with these symptoms suffering from? Outbursts of emotions, unpredictable moods, quarrelsome behaviour, conflicts with others

- (a) Mood disorders
- (b) Addictive disorders
- (c) Schizophrenia
- (d) Borderline personality disorder (BPD)

Answer: (d)

295. Even after the brain of a frog has been crushed, it still responds to a pinch on the leg by drawing it away. This act is an example of

- (a) Conditioned reflex
- (b) Simple reflex
- (c) Automated motor response
- (d) Neurotransmitter induced response

Answer: (b)

296. Which of these functions will be affected if the medulla oblongata is damaged?

- (a) Vision
- (b) Thermoregulation
- (c) Memory
- (d) Tactile sensation – response when pricked with a needle

Answer: (d)

297. This part of the human brain is also known as the emotional brain

- (a) Epithalamus
- (b) Limbic system
- (c) Broca's area
- (d) Corpus callosum

Answer: (b)

298. This is the outermost cranial appendage

- (a) Dura mater
- (b) Pia mater
- (c) Skull
- (d) Arachnoid

Answer: (a)

299. This cranial meninges is in close proximity of the brain tissue

- (a) Dura mater
- (b) Pia mater
- (c) Arachnoid
- (d) Skull tissue

Answer: (b)

300. This statement is not associated with midbrain

- a) the ventral portion of the midbrain is composed of mainly four, round swellings known as corpora quadrigemina
- b) located between thalamus of the forebrain and pons of the hindbrain
- c) the canal called cerebral aqueduct passes through the midbrain
- d) hindbrain and midbrain constitute the brain stem

Answer: (a)

301. This hormone is produced under condition of stress which stimulates glycogenolysis in the liver of human beings

- (a) Insulin
- (b) Thyroxin
- (c) Estradiol
- (d) Adrenaline

Answer: (d)

302. Fight or flight reactions cause the activation of
(a) the parathyroid glands, leading to increased metabolic rate
(b) adrenal medulla leading to increased secretion of epinephrine and norepinephrine
(c) pancreas leading to a reduction in the blood sugar levels
(d) the kidney, causing suppression of the renin-angiotensin-aldosterone pathway
Answer: (b)

303. After trying for several years, a couple finally learnt that they are going to have a baby. They are experiencing this type of stress
(a) Strain
(b) Anxiety
(c) Distress
(d) Eustress
Answer: (d)

304. This part of the autonomic nervous system provides the body with energy for the fight-or-flight response
(a) Central nervous system
(b) Sympathetic nervous system
(c) Peripheral nervous system
(d) Parasympathetic nervous system
Answer: (b)

305. A real or perceived challenge or threat which causes the body to produce a response is a(n)
(a) injury
(b) phobia
(c) stressor
(d) frustration
Answer: (c)

306. The hormone released by the adrenal glands allows the body to make energy more readily available from the stored nutrients
(a) ACTH
(b) Cortisol
(c) Epinephrine
(d) Norepinephrine
Answer: (b)

307. When danger or stress is perceived/experienced, this response occurs in the body
(a) Exhaustion
(b) Adaption
(c) Fight-or-flight
(d) Resistance

Answer: (c)

308. This branch of science investigates the relationship between stress and the nervous and immune systems

- (a) Neurolinguistics
- (b) Sociology
- (c) Adaptive immunology
- (d) Psychoneuroimmunology

Answer: (d)

309. All of the following is true about the hormone epinephrine except that it

- (a) is released by the pituitary gland
- (b) is also known as adrenaline
- (c) is secreted by the adrenal gland
- (d) prepares the body for action

Answer: (a)

310. The primary hormone responsible for stress-related physiological responses, such as an increase in heart rate is

- (a) insulin
- (b) cortisol
- (c) epinephrine
- (d) thyroxin

Answer: (c)

UNIT – 6

THINKING, INTELLIGENCE AND CREATIVITY

THINKING, INTELLIGENCE AND CREATIVITY

What is Theoretical perspectives on thought processes: Associationism, Gestalt, Information processing, Feature integration model Concept formation: Rules, Types, and Strategies; Role of concepts in thinking Types of Reasoning Language and thought?

THEORETICAL PERSPECTIVES ON THOUGHT PROCESSES: ASSOCIATIONISM, GESTALT, INFORMATION PROCESSING, FEATURE INTEGRATION MODEL CONCEPT FORMATION: RULES, TYPES, AND STRATEGIES; ROLE OF CONCEPTS IN THINKING TYPES OF REASONING LANGUAGE AND THOUGHT

Theoretical perspectives on thought processes: Associationism, Gestalt, Information processing, Feature

ASSOCIATIONISM

Associationism is a theory that connects learning to thought based on principles of the organism's causal history. Since its early roots, associationists have sought to use the history of an organism's experience as the main sculptor of cognitive architecture. In its most basic form, associationism has claimed that pairs of thoughts become associated based on the organism's past experience.

So, **for example**, a basic form of associationism (such as Hume's) might claim that the frequency with which an organism has come into contact with Xs and Ys in one's environment determines the frequency with which thoughts about Xs and thoughts about Ys will arise together in the organism's future.

Associationism's popularity is in part due to how many different masters it can serve. In particular, associationism can be used as a theory of learning (e.g., as in behaviorist theorizing), a theory of thinking (as in Jamesian "streams of thought"), a theory of mental structures (e.g., as in concept pairs), and a theory of the implementation of thought (e.g., as in connectionism).

All these theories are separable, but share a related, empiricist-friendly core. As used here, a "pure associationist" will refer to one who holds associationist theories of learning, thinking, mental structure, and implementation.

The "pure associationist" is a somewhat idealized position, one that no particular theorist may have ever held, but many have approximated to differing degrees (e.g., Locke 1690/1975; Hume 1738/1975; Thorndike 1911; Skinner 1953; Hull 1943; Churchland 1986, 1989; Churchland and Sejnowski 1990; Smolensky 1988; Elman 1991; Elman et al. 1996; McClelland et al. 2010; Rydell and McConnell 2006; Fazio 2007).

Outside of these core uses of associationism the movement has also been closely aligned with a

number of different doctrines over the years: empiricism, behaviorism, anti-representationalism (i.e., skepticism about the necessity of representational realism in psychological explanation), gradual learning, and domain-general learning. All of these theses are dissociable from core associationist thought (see section 7).

While one can be an associationist without holding those theses, some of those theses imply associationism to differing degrees. These extra theses' historical and sociological ties to associationism are strong, and so will be intermittently discussed below.

1) **ASSOCIATIONISM AS A THEORY OF MENTAL PROCESSES: THE EMPIRICIST CONNECTION:** Empiricism is a general theoretical outlook, which tends to offer a theory of learning to explain as much of our mental life as possible. From the British empiricists through Skinner and the behaviorists (see the entry on behaviorism) the main focus has been arguing for the acquisition of concepts (for the empiricists' "ideas", for the behaviorists "responses") through learning.

However, the mental processes that underwrite such learning are almost never themselves posited to be learned. So winnowing down the amount of mental processes one has to posit limits the amount of innate machinery with which the theorist is saddled. Associationism, in its original form as in Hume (1738/1975), was put forward as a theory of mental processes.

Associationists' attempt to answer the question of how many mental processes there are by positing only a single mental process: the ability to associate ideas. Of course, thinkers execute many different types of cognitive acts, so if there is only one mental process, the ability to associate, that process must be flexible enough to accomplish a wide range of cognitive work. In particular, it must be able to account for learning and thinking.

Accordingly, associationism has been utilized on both fronts. We will first discuss the theory of learning and then, after analyzing that theory and seeing what is putatively learned, we will return to the associationist theory of thinking.

2) **ASSOCIATIONISM AS A THEORY OF LEARNING:** In one of its senses, "associationism" refers to a theory of how organisms acquire concepts, associative structures, response biases, and even propositional knowledge. It is commonly acknowledged that associationism took hold after the publishing of John Locke's essay concerning human understanding (1690/1975).

However, Locke's comments on associationism were terse (though fertile), and did not address learning to any great degree. The first serious attempt to detail associationism as a theory of learning was given by Hume in the *Treatise of Human Nature* (1738/1975). Hume's associationism was, first and foremost, a theory connecting how perceptions ("Impressions") determined trains of thought (successions of "Ideas").

Hume's empiricism, as enshrined in the Copy Principle demanded that there were no Ideas in the mind that were not first given in experience. For Hume, the principles of association constrained the functional role of Ideas once they were copied from Impressions: if Impressions IM1 and IM2 were associated in perception, then their corresponding Ideas, ID1 and ID2 would also become associated.

In other words, the ordering of Ideas was determined by the ordering of the Impressions that caused the Ideas to arise. Hume's theory then needs to analyze what types of associative relations between Impressions mattered for determining the ordering of Ideas. Hume's analysis consisted of three types of associative relations: cause and effect, contiguity, and resemblance.

If two Impressions instantiated one of these associative relations, then their corresponding Ideas would mimic the same instantiation. For instance, if Impression IM1 was cotemporaneous with Impression IM2, then (*ceteris paribus*) their corresponding Ideas, ID1 and ID2, would become associated.

As stated, Hume's associationism was mostly a way of determining the functional profile of Ideas. But we have not yet said what it is for two Ideas to be associated (for that see section 4). Instead, one can see Hume's contribution as introducing a very influential type of learning—associative learning—for Hume's theory purports to explain how we learn to associate certain Ideas.

We can abstract away from Hume's framework of ideas and his account of the specific relations that underlie associative learning, and state the theory of associative learning more generally: if two contents of experiences, X and Y, instantiate some associative relation, R, then those contents will become associated, so that future activations of X will tend to bring about activations of Y.

The associationist then has to explain what relation R amounts to. The Human form of associative learning (where R is equated with cause and effect, contiguity, or resemblance) has been hugely influential, informing the accounts of those such as Jeremy Bentham, J.S. Mill, and Alexander Bain (see, e.g., the entries on John Stuart Mill and 19th Century Scottish Philosophy).

Associative learning didn't hit its stride until the work of Ivan Pavlov, which spurred the subsequent rise of the behaviorist movement in psychology. Pavlov introduced the concept of classical conditioning as a modernized version of associative learning.

For Pavlov, classical conditioning was in part an experimental paradigm for teaching animals to learn new associations between stimuli. The general method of learning was to pair an unconditioned stimulus (US) with a novel stimulus. An unconditioned stimulus is just a

stimulus that instinctively, without training, provokes a response in an organism. Since this response is not itself learned, the response is referred to as an “unconditioned response” (UR). In Pavlov’s canonical experiment, the US was a meat powder, as the smell of meat automatically brought about salivation (UR) in his canine subjects. The US is then paired with a neutral stimulus, such as a bell.

Over time, the contiguity between the US and the neutral stimulus causes the neutral stimulus to provoke the same response as the US. Once the bell starts to provoke salivation, the bell has become a “conditioned stimulus” (CS) and the salivating, when prompted by the bell alone, a “conditioned response” (CR).

The associative learning here is learning to form new stimulus-response pairs between the bell and the salivation. Classical conditioning is a fairly circumscribed process. It is a “stimulus substitution” paradigm where one stimulus can be swapped for another to provoke a response. However, the responses that are provoked are supposed to remain unchanged; all that changes is the stimulus that gets associated with the response.

Thus, classical conditioning seemed to some to be too restrictive to explain the panoply of novel behavior organisms appear to execute. Edward Thorndike’s research with cats in puzzle boxes broadened the theory of associative learning by introducing the notion of consequences to associative learning.

Thorndike expanded the notion of associative learning beyond instinctual behaviors and sensory substitution to genuinely novel behaviors. Thorndike’s experiments initially probed, e.g., how cats learned to lift a lever to escape the “puzzle boxes” (the forerunner to “Skinner boxes”) that they were trapped in. The cats’ behaviors, such as attempting to lift a lever, were not themselves instinctual behaviors like the URs of Pavlov’s experiments.

Additionally, the cats’ behaviors were shaped by the consequences that they brought on. For Thorndike it was because lifting the lever caused the door to open that the cats learned the connection between the lever and the door. This new view of learning, operant conditioning (for the organism is “operating” on its environment), was not merely the passive learning of Pavlov, but a species-nonspecific, general, active theory of learning.

This research culminated in Thorndike’s famous “Law of Effect” (1911), the first canonical psychological law of associationist learning. It asserted that responses that are accompanied by the organism feeling satisfied will, *ceteris paribus*, be more likely to be associated with the situation in which the behavior was executed, whereas responses that are accompanied with a feeling of discomfort to the animal will, *ceteris paribus*, make the response less likely to occur when the organism encounters the same situation.

The greater the positive or negative feelings produced, the greater the likelihood that the behavior will be evinced. To this Thorndike added the “Law of Exercise”, that responses to situations will, *ceteris paribus*, be more connected to those situations in proportion to the frequency of past pairings between situation and response. Thorndike’s paradigm was popularized and extended by B.F. Skinner (see, e.g., Skinner 1953) who stressed the notion not just of consequences but of reinforcement as the basis of forming associations.

For Skinner, a behavior would get associated with a situation according to the frequency and strength of reinforcement that would arise as a consequence of the behavior. Since the days of Skinner, associative learning has come in many different variations. But what all varieties should share with their historical predecessors is that associative learning is supposed to mirror the contingencies in the world without adding additional structure to them (see section 9 for some examples of when supposedly associative theories smuggle in extra structure).

The question of what contingencies associative learning detects (that is, one’s preferred analysis of what the associative relation R is), is up for debate and changes between theorists. The final widely shared, though less central, property of associative learning concerns the domain generality of associative learning.

Domain generality’s prevalence among associationists is due in large part to their traditional empiricist allegiances: excising domain-specific learning mechanisms constrains the amount of innate mental processes one has to posit. Thus it is no surprise to find that both Hume and Pavlov assumed that associative learning could be used to acquire associations between any contents, regardless of the types of contents they were. For example, Pavlov writes,

3) ASSOCIATIONISM AS A THEORY OF MENTAL STRUCTURE: Associative learning amounts to a constellation of related views that interprets learning as associating stimuli with responses (in operant conditioning), or stimuli with other stimuli (in classical conditioning), or stimuli with valences (in evaluative conditioning).

Associative learning accounts raise the question: when one learns to associate contents x and y because, e.g., previous experiences with x s and y s instantiated r , how does one store the information that x and y are associated? A highly contrived sample answer to this question would be that a thinker learns an explicitly represented unconscious conditional rule that states “when a token of x is activated, then also activate a token of y ”.

Instead of such a highly intellectualized response, associationists have found a natural (though by no means necessary, see section 4.2) complementary view that the information is stored in an associative structure. An associative structure describes the type of bond that connects two distinct mental states. An example of such a structure is the associative pair salt/pepper.

The associative structure is defined, in the first instance, functionally:

If X and Y form an associative structure, then, *ceteris paribus*, activations of mental state X bring about mental state Y and viceversa without the mediation of any other psychological states (such as an explicitly represented rule telling the system to activate a concept because its associate has been activated).

In other words, saying that two concepts are associated amounts to saying that there is a reliable, psychologically basic causal relation that holds between them—the activation of one of the concepts causes the activation of the other. So, saying that someone harbors the structure salt/pepper amounts to saying that activations of salt will cause activations of pepper (and vice versa) without the aid of any other cognitive states.

Associative structures are most naturally contrasted with propositional structures. A pure associationist is opposed to propositional structures—strings of mental representations that express a proposition—because propositionally structured mental representations have structure over and above the mere associative bond between two concepts.

Take, for example, the associative structure green/toucan. This structure does not predicate green onto toucan. If we know that a mind has an associative bond between green and toucan, then we know that activating one of those concepts leads to the activation of the other.

A pure associative theory rules out predication, for propositional structures aren't just strings of associations. "Association" (in associative structures) just denotes a causal relation among mental representations, whereas predication (roughly) expresses a relation between things in the world (or intentional contents that specify external relations).

Saying that someone has an associative thought green/toucan tells you something about the causal and temporal sequences of the activation of concepts in one's mind; saying that someone has the thought there is a green toucan tells you that a person is predicating greenness of a particular toucan (see Fodor 2003: 91–94, for an expansion of this point).

Associative structures needn't just hold between simple concepts. One might have reason to posit associative structures between propositional elements (see section 5) or between concepts and valences (see section 8). But none of the preceding is meant to imply that all structures are associative or propositional—there are other representational formats that the mind might harbor (e.g., analog magnitudes or iconic structures; see Camp 2007; Quilty-Dunn forthcoming).

For instance, not all semantically related concepts are harbored in associative structures. Semantically related concepts may in fact also be directly associated (as in doctor/nurse) or they may not (as in horse/zebra; see Perea and Rosa 2002).

The difference in structure is not just a theoretical possibility, as these different structures have different functional profiles: for example, conditioned associations appear to last longer than semantic associations do in subjects with dementia (Glosser and Friedman 1991).

4) ASSOCIATIONISM IN SOCIAL PSYCHOLOGY: Since the cognitive revolution, associationism's influence has mostly died out in cognitive psychology and psycholinguistics. This is not to say that all aspects of associative theorizing are dead in these areas; rather, they have just taken on much smaller, more peripheral roles (for example, it has often been suggested that mental lexicons are structured, in part, associatively, which is why lexical decision tasks are taken to be facilitation maps of one's lexicon).

In other areas of cognitive psychology (for example, the study of causal cognition), associationism is no longer the dominant theoretical paradigm, but vestiges of associationism still persist (see Shanks 2010 for an overview of associationism in causal cognition). Associationism is also still alive in the connectionist literature, as well as in the animal cognition tradition.

But the biggest contemporary stronghold of associationist theorizing resides in social psychology, an area which has traditionally been hostile to associationism (see, e.g., Asch 1962, 1969). The ascendance of associationism in social psychology has been a fairly modern development, and has caused a revival of associationist theories in philosophy (e.g., Madva and Brownstein 2019).

The two areas of social psychology that have seen the greatest renaissance of associationism are the implicit attitude and dual-process theory literature. However, in the late 2010s social psychology has begun to take a critical look at associationist theories (e.g., Mann et al. 2019).

CRITICISMS OF ASSOCIATIONISM

Associationism has been a dominant theme in mental theorizing for centuries. As such, it has garnered an appreciable amount of criticism.

LEARNING CURVES

The basic associative learning theories imply, either explicitly or implicitly, slow, gradual learning of associations (Baeyens et al. 1995). The learning process can be summarized in a learning curve which plots the frequency (or magnitude) of the conditioned response as a function of the number of reinforcements (Gallistel et al. 2004: 13124). Mappings between CRs and USs are gradually built up over numerous trials (in the lab) or experiences (in the world). Gradual, slow learning has come under fire from a variety of areas (see sections 9.3 and 9.4.1).

However, here we just focus on the behavioral data. In a series of works re-analyzing animal

behavior, Gallistel (Gallistel et al. 2004; Gallistel and King 2009) has argued that although group-level learning curves do display the properties of being negatively accelerated and gradually developing, these curves are misleading because no individual's learning curve has these properties.

Gallistel has argued that learning for individuals is generally step-like, rapid, and abrupt. An individual's learning from a low-level of responding to asymptotic responding is very quick. Sometimes, the learning is so quick that it is literally one-shot learning. For example, after analyzing multiple experiments of animal learning of spatial location Gallistel writes.

THE PROBLEM OF PREDICATION

The problem of predication is, at its core, a problem of how an associative mechanism can result in the acquisition of subject/predicate structures, structures which many theorists believe appear in language, thought, and judgment.

The first major discussion of the problem appears in Kant (1781/1787), but variants of the basic Kantian criticism can be seen across the contemporary literature (see, e.g., Chomsky 1959; Fodor and Pylyshyn 1988; Fodor 2003; Mandelbaum 2013a; for the details of the Kantian argument see the entry on Kant's Transcendental Argument).

For a pure associationist, association is "semantically transparent" (see Fodor 2003), in that it purports to add no additional structure to thoughts. When a simple concept, X and a simple concept Y, become associated one acquires the associative structure X/Y. But X/Y has no additional structure on top of their contents.

Knowing that X and Y are associated amounts to knowing a causal fact: that activating Xs will bring about the activation of Ys and vice versa. However, so the argument goes, some of our thoughts appear to have more structure than this: the thought birds fly predicates the property of flying onto birds.

The task for the associationist is to explain how associative structures can distinguish a thinker who has a single (complex) thought birds fly from a thinker who conjoins two simple thoughts in an associative structure where one thought, birds, is immediately followed by another, fly.

As long as the two simple thoughts are reliably causally correlated so that, for a thinker, activations of birds regularly brings about fly, then that thinker has the associative structure birds/fly. Yet it appears that thinker hasn't yet had the thought birds fly.

The problem of predication is explaining how a purely associative mechanism could eventuate in complex thoughts. In Fodor's terms the problem boils down to how association, a causal relation among mental representations, can affect predication, a relation among intentional contents (Fodor

2003).

AGAINST THE CONTIGUITY ANALYSIS OF ASSOCIATIONISM

Contiguity has been a central part of associationist analyses since the British Empiricists. In the experimental literature, the problem of figuring out the parameters needed for acquiring an association due to the contiguity of its relata has sometimes been termed the problem of the "Window of Association" (e.g., Gallistel and King 2009).

Every associationist theory has to specify what temporal window two properties must instantiate in order for those properties to be associated. A related problem for contiguity theorists is that if the domain generality of associative learning is desired, then the window needs to be homogenous across content domains. The late 1960s saw persuasive attacks on domain generality, as well as the necessity and sufficiency of the contiguity criterion in general.

AGAINST THE NECESSITY OF CONTIGUITY

Research on "taste aversions" and "bait-shyness" provided a variety of problems with contiguity in the associative learning tradition of classical conditioning. Garcia observed that a gustatory stimulus (e.g., drinking water or eating a hot dog) but not an audiovisual stimulus (a light and a sound) would naturally become associated with feeling nauseated.

For instance, Garcia and Koelling (1966) paired an audiovisual stimulus (a light and a sound) with a gustatory stimulus (flavored water). The two stimuli were then paired with the rats receiving radiation, which made the rats feel nauseated. The rats associated the feeling of nausea with the water and not with the sound, even though the sound was contiguous with the water.

Moreover, the delay between ingesting the gustatory stimulus and feeling nauseated could be quite long, with the feeling not coming on until 12 hours later (Roll and Smith 1972), and the organism needn't even be conscious when the negative feeling arises. (For a review, see Seligman 1970; Garcia et al. 1974).

The temporal delay shows that the CS (the flavored water) needn't be contiguous with the US (the feeling of nausea) in order for learning to occur, thus showing that contiguity isn't necessary for associative learning.

GESTALT PERSPECTIVES ON THOUGHT PROCESSES

Gestalt psychology is a school of thought that looks at the human mind and behavior as a whole. When trying to make sense of the world around us, Gestalt psychology suggests that we do not simply focus on every small component.

Instead, our minds tend to perceive objects as part of a greater whole and as elements of more complex systems. This school of psychology played a major role in the modern development of the study of human sensation and perception.

Originating in the work of Max Wertheimer, Gestalt psychology formed partially as a response to the structuralism of Wilhelm Wundt. While Wundt was interested in breaking down psychological matters into their smallest possible part, the Gestalt psychologists were instead interested in looking at the totality of the mind and behavior. The guiding principle behind the Gestalt movement was that the whole was greater than the sum of its parts.

The development of this area of psychology was influenced by a number of thinkers, including Immanuel Kant, Ernst Mach, and Johann Wolfgang von Goethe. The development of Gestalt psychology was influenced in part by Wertheimer's observations one day at a train station. He purchased a toy stroboscope which displayed pictures in a rapid sequence to mimic the appearing movement.

He later proposed the concept of the Phi phenomenon in which flashing lights in sequence can lead to what is known as apparent motion. In other words, we perceive movement where there is none. Movies are one example of apparent motion. Through a sequence of still frames, the illusion of movement is created.

"The fundamental 'formula' of Gestalt theory might be expressed in this way," Max Wertheimer wrote. "There are wholes, the behavior of which is not determined by that of their individual elements, but where the part-processes are themselves determined by the intrinsic nature of the whole. It is the hope of Gestalt theory to determine the nature of such wholes."

Gestalt is a decisive trend in psychology history. It was born in Germany at the beginning of the 20th century. It was Christian von Ehrenfels, an Austrian philosopher, who gave this movement its name in *The Attributes of Form*, his most important work. There is no perfect English translation of the term "gestalt". But we can interpret it as "totality", "figure", "structure", "configuration" or "organized unity".

"The whole is more than the sum of its parts" is its maximum. The main authors of Gestalt proposed alternatives to the dominant psychological paradigms and made great contributions to cognitive psychology.

This particular focus was a breath of fresh air and allowed people who did not feel represented by the main currents of psychology to find an alternative.

GESTALT THEORY: CHARACTERISTICS

- **Its main predecessors of gestalt theory are philosophers:** Thinkers such as Kant, Descartes or Husserl developed the theoretic basis on which this school developed. The psychologists belonging to this current were able to take their ideas to the laboratory and obtain amazing results.
- **We must treat people as a whole:** We cannot explore the different dimensions that shape us in isolation. A holistic approach is needed when speaking about mental health.

- **The complexity of the human mind cannot be reduced.** Gestalt theory explores the dynamic relationships that connect the various elements of reality. Gestalt theory does not conceive separating processes such as learning from memory.
- **We are active in understanding reality:** We do not all perceive reality, in the same way, we have our own vision. Each one structures the information they receive according to their previous experiences. **Our mental representations do not correspond completely with those that exist in reality, we construct them ourselves.** We are also able to adapt our mental processes and contents as new situations arise.
- **They opposed the predominant schools in their time:** Gestalt theory psychologists did not agree with approaches such as behaviorism, which limits human behavior to associations between stimuli and responses. This perspective leaves mental processes aside and does not contemplate the potential of human intelligence. On the other hand, they did not adhere to psychoanalysts either, seeing people as passive agents without willpower.
- **Gestalt theory's main study area is perception:** Gestalt theorists focused especially on seeking simple and natural explanations that could be adapted to our natural way of perceiving reality.

Through perception, we are able to acquire knowledge of the world, interact with it and connect with others. Our senses and mental processes interact to allow us to perform tasks as varied as removing the hand from a burning surface or notice that the person speaking to us is upset by their frowning. **Gestalt theory focuses on visual perception.** However, their ideas have been adapted to fields such as music.

Gestalt psychologists are known for their contributions to the study of the learning process and problem-solving. However, their most relevant contribution, which was stated by Wertheimer, is the elaboration of some basic laws that govern our perception.

INFORMATION PROCESSING, FEATURE INTEGRATION MODEL

Basic Assumptions

The information processing approach is based on a number of assumptions, including:

- 1) information made available by the environment is processed by a series of processing systems (e.g. attention, perception, short-term memory);
- 2) these processing systems transform or alter the information in systematic ways;
- 3) the aim of research is to specify the processes and structures that underlie cognitive performance;
- 4) information processing in humans resembles that in computers.

The development of the computer in the 1950s and 1960s had an important influence on psychology and was, in part, responsible for the cognitive approach becoming the dominant approach in modern psychology (taking over from Behaviorism). The computer gave cognitive psychologists a metaphor, or analogy, to which they could compare human mental processing.

The use of the computer as a tool for thinking how the human mind handles information is known

as the computer analogy. Essentially, a computer codes (i.e., changes) information, stores information, uses information, and produces an output (retrieves info). The idea of information processing was adopted by cognitive psychologists as a model of how human thought works.

For example, the eye receives visual information and codes information into electric neural activity which is fed back to the brain where it is “stored” and “coded”. This information can be used by other parts of the brain relating to mental activities such as memory, perception and attention. The output (i.e. behavior) might be, for example, to read what you can see on a printed page. Hence the information processing approach characterizes thinking as the environment providing input of data, which is then transformed by our senses.

The information can be stored, retrieved and transformed using “mental programs”, with the results being behavioral responses. Cognitive psychology has influenced and integrated with many other approaches and areas of study to produce, for example, social learning theory, cognitive neuropsychology and artificial intelligence (AI).

Information Processing and Selective Attention

When we are selectively attending to one activity, we tend to ignore other stimulation, although our attention can be distracted by something else, like the telephone ringing or someone using our name.

Psychologists are interested in what makes us attend to one thing rather than another (selective attention); why we sometimes switch our attention to something that was previously unattended (e.g. Cocktail Party Syndrome), and how many things we can attend to at the same time (attentional capacity).

One way of conceptualizing attention is to think of humans as information processors who can only process a limited amount of information at a time without becoming overloaded. Broadbent and others in the 1950s adopted a model of the brain as a limited capacity information processing system, through which external input is transmitted.

Information processing models consist of a series of stages, or boxes, which represent stages of processing. Arrows indicate the flow of information from one stage to the next.

- **Input** processes are concerned with the analysis of the stimuli.
- **Storage** processes cover everything that happens to stimuli internally in the brain and can include coding and manipulation of the stimuli.
- **Output** processes are responsible for preparing an appropriate response to a stimulus.

Critical Evaluation

A number of models of attention within the Information Processing framework have been proposed including:

Broadbent's Filter Model (1958), Treisman's Attenuation Model (1964) and Deutsch and Deutsch's Late Selection Model (1963).

However, there are a number of evaluative points to bear in mind when studying these models, and the information processing approach in general. These include:

- 1) The information processing models assume serial processing of stimulus inputs.
 - **Serial processing** effectively means one process has to be completed before the next starts.
 - **Parallel processing** assumes some or all processes involved in a cognitive task(s) occur at the same time.

There is evidence from dual-task experiments that parallel processing is possible. It is difficult to determine whether a particular task is processed in a serial or parallel fashion as it probably depends (a) on the processes required to solve a task, and (b) the amount of practice on a task.

Parallel processing is probably more frequent when someone is highly skilled; for example a skilled typist thinks several letters ahead, a novice focuses on just 1 letter at a time.

- 2) The analogy between human cognition and computer functioning adopted by the information processing approach is limited.

Computers can be regarded as information processing systems insofar as they:

- i. combine information presented with stored information to provide solutions to a variety of problems, and
- ii. Most computers have a central processor of limited capacity and it is usually assumed that capacity limitations affect the human attentional system.

BUT -

- i. the human brain has the capacity for extensive parallel processing and computers often rely on serial processing;
 - ii. humans are influenced in their cognitions by a number of conflicting emotional and motivational factors.
- 3) The evidence for the theories/models of attention which come under the information processing approach is largely based on experiments under controlled, scientific conditions. Most laboratory studies are artificial and could be said to lack ecological validity.

In everyday life, cognitive processes are often linked to a goal (e.g. you pay attention in class because you want to pass the examination), whereas in the laboratory the experiments are carried out in isolation from other cognitive and motivational factors. Although these laboratory experiments are easy to interpret, the data may not be applicable to the real world outside the laboratory.

More recent ecologically valid approaches to cognition have been proposed (e.g. the Perceptual Cycle, Neisser, 1976). Attention has been studied largely in isolation from other cognitive processes, although clearly it operates as an interdependent system with the related cognitive processes of perception and memory.

The more successful we become at examining part of the cognitive system in isolation, the less our data are likely to tell us about cognition in everyday life.

FEATURE INTEGRATION THEORY

Feature Integration Theory was parent to a family of subsequent models. Many of these include the concept of guided search. In guided search, the information gathered about basic features can be used to guide attention toward likely targets.

Thus, if an observer is looking for a red letter T, attention will be guided to red letters and not wasted on letters that could never be the target (Wolfe, J. M., 1994). In two-stage modeling, critical questions include the nature of the stimulus attributes that can be processed prior to attentional selection as discussed earlier.

Some attributes, like color and orientation clearly fall into the preattentive category. The more interesting and problematic cases are complex and/or learned classes of stimuli like faces and letters. All models must resolve issues about the nature of selection.

What is selected? If objects are selected, how are objects parsed from the background prior to selection? What are the limits on selection? Can more than one item be selected at one time? What does selection do? Does it enhance processing? Does it enable different types of processing?

BINDING BY ATTENTION

Anne Treisman's Feature Integration Theory (FIT), developed in the context of visual search tasks, postulates that the correct binding of object features requires visual attention. Treisman starts from the assumption that the visual system is equipped with a set of 'feature maps,' with a different map for every conceivable feature (e.g., 'red,' 'green,' 'square,' 'circular').

These feature maps are connected to a 'master map of locations,' which encodes the exact positions of objects in visual space (**Figure 4**). When the search target is defined by a single feature, for example, 'red,' one only has to monitor the respective feature map and trace its activation to the target's position on the master map. This is what occurs in parallel search when the target seems to 'pop out' of the display (see 'Empirical evidence for binding problems in visual perception' section).

However, when the target is defined by a conjunction of features, it is necessary to employ visual

attention. Each object location on the master map has to be scanned by a 'spotlight' of attention, and for each of these positions the single features have to be collected from the feature maps and bound into an 'object file' that can be compared with a target template stored in working memory.

As soon as the current object file matches the target template, the object has been found, and the search is terminated. Because the sequential scanning of object positions is a time-consuming process that depends on the number of positions to be covered, this model can explain serial search.

FEATURE INTEGRATION THEORY

Anne Treisman's Feature Integration Theory (FIT), first proposed in 1980, holds that attention is critical to the formation of bound representations of objects and, by extension, it proposes that attention is critical to our conscious experience of those bound representations. In FIT, following the understanding of visual neurophysiology given above, the visual system first decomposes the visual scene into its composite features, arrayed in a set of "feature maps."

The pre-attentive description of a scene or object comprises a list of such features. The term "pre-attentive" has been controversial but it can be operationally defined here as the representation of a stimulus before selective attention is directed to that stimulus.

In FIT, the approximate position of each feature is recorded on its pre-attentive feature map. For example, if the visual scene contains two red objects, the feature map corresponding to redness would be activated at two points roughly corresponding to the locations of the red objects. If each feature were associated with a precise region in space, this might solve the binding problem.

Features that correspond to the same region in space could be automatically conjoined thus guaranteeing veridical perception. Unfortunately, the location of many features is measured in an imprecise fashion. For example, the smallest receptive fields in IT, the region whose activity correlates well with shape perception, have a spatial extent of a few degrees of visual angle. Within this region, the cell will respond to an object in an approximately translation invariant manner.

Thus, a neuron in IT cannot signal the location of a particular shape with a precision of better than a few degrees, while the perception of coherent objects requires a much finer resolution. Because of the poor resolution of these feature maps, if two objects are close together, then there is the potential that the features from one object may become conjoined with the features of the other object thus creating a percept of an object that did not in fact exist.

For example, if the visual scene contains a red vertical bar and a blue horizontal bar then one might see a blue vertical bar and a red horizontal bar. Such inappropriate combinations of features are known as illusory conjunctions. FIT suggests that attention hinders the formation of illusory conjunctions.

Supporting this assertion is a series of classic experiments by Treisman and her colleagues showing that, if attention is occupied elsewhere, illusory conjunctions are, in fact, reported. In one version of the experiment, observers viewed a display of five characters aligned horizontally. The outer two characters were always digits and the inner three characters were always letters. While the digits were always black, the letters were colored.

The observer's primary task was to name the digits. After doing that, the observer reported the letters and their associated colors. When the display was presented sufficiently rapidly, observers would often report seeing an incorrect conjunction of a color and a letter. For example, if the display contained a red X and a green T, they might report seeing a red T.

Crucially, these illusory conjunctions occurred at a much higher rate than could be attributed to the observer simply misperceiving a given feature. Generally, the observer correctly perceived the features present in the display. It was the conjoining of features that proved to be problematic. When asked to report how confident they were that they had actually seen an object, observers were just as confident when they reported seeing an illusory conjunction as they were when they correctly reported the features of an object.

Indeed, although all observers were told that the digits would always be black (and in fact always were) about half the observers spontaneously reported that the digits sometimes appeared to be colored, sometimes even going as far as to argue with the experimenter about the issue! This raises an interesting problem in the study of attention and awareness. In tasks of this sort, one can only ask about what was seen, after the fact.

If one asks about the current status of a visible object, the observer will attend to it in order to answer the question and will be unable to give an accurate report of the unattended state. Nevertheless, the phenomenology of illusory conjunctions does show that, within a fraction of a second of the disappearance of a display, observers can be quite convinced that they have seen something that was not, in fact, present.

Subsequent studies have shown that illusory conjunctions can be perceived even when the subject attends to the objects, especially if the objects are perceptually grouped. Clearly, attention does not always succeed in solving the binding problem. There is neuropsychological evidence, from studies of patients with Balint's syndrome, which supports the idea that attention can inhibit the formation of illusory conjunctions.

This syndrome occurs when both the left and right parietal lobes are damaged. As these areas help govern the deployment of attention, such patients have great difficulty in directing their attention to a given object, resulting in the inability to perceive more than one object at a time. As would be expected, they are also prone to suffer from illusory conjunctions, experiencing them even when the

image is displayed for several seconds.

Neurophysiological support also comes from work by Robert Desimone and colleagues. They performed a series of extracellular studies in area V4 of the macaque monkey that have shown that attention can help solve the binding problem. First they would find a stimulus that, when presented on its own, would elicit a strong response from the neuron in question (the preferred stimulus), and another that would elicit only a weak response (the non-preferred stimulus).

They would then present both stimuli simultaneously so that they both were within the neuron's receptive field. In the absence of attention, the cell would simultaneously respond to both stimuli, with its response (spike rate) lying between that generated by each stimulus when presented on its own. In other words, the response reflected contributions from both stimuli, meaning that the cell could not distinguish between the two.

However, when the monkey attended to one of the stimuli, the situation changed and the cell responded primarily to the attended stimulus. Specifically, when the monkey attended to the preferred stimulus, the cell would respond strongly, but when the non-preferred stimulus was attended, only a weak response was elicited.

In this case, attention was able to solve the binding problem, at least at the neuronal level, by shrinking the receptive field of the cell to include just the selected item, thereby removing the influence of the unattended item. This constriction of the receptive field does not explain how signals about one feature analyzed in one cortical area can be bound to signals about another feature from another area.

Other mechanisms have been suggested to account for this aspect of binding. Several of these are based on the idea that neurons in different cortical areas that respond to the same object synchronize their activity, so that they create action potentials at the same time. Consequently, a third brain area could determine whether two neurons in two different parts of the brain are responding to different features of the same object by being sensitive to this synchrony.

As attention is known to increase neural synchrony, theories based on synchrony are consistent with the notion that attention is needed to solve the binding problem. An alternative theory put forward by Edward Vul and Anina Rich suggests that features are not directly bound together but rather are unconsciously perceived as being bound when they are perceived to share a location in space and time.

Attending to a feature allows it to be more precisely localized, thereby increasing the chances that the correct features are perceived together and decreasing the chances of illusory conjunctions forming. Thus they propose that attention solves the binding problem only in an indirect fashion by increasing the precision by which features can be localized in space and time.

CONCEPT FORMATION: RULES, TYPES

Concept formation, process by which a person learns to sort specific experiences into general rules or classes. With regard to action, a person picks up a particular stone or drives a specific car. With regard to thought, however, a person appears to deal with classes. For instance, one knows that stones (in general) sink and automobiles (as a class) are powered by engines.

In other words, these things are considered in a general sense beyond any particular stone or automobile. Awareness of such classes can help guide behaviour in new situations. Thus two people in a bakery may never have met before, but, if one can be classified as customer and the other as clerk, they tend to behave appropriately.

Similarly, many people are able to drive almost any automobile by knowing how to drive a specific automobile. The term concept formation describes how a person learns to form classes, whereas the term conceptual thinking refers to an individual's subjective manipulation of those abstract classes. A concept is a rule that may be applied to decide if a particular object falls into a certain class. The concept "citizen of the United States" refers to such a decision rule, meaning any person who was born in U.S. territory or who is a child of a U.S. citizen or who has been legally naturalized.

The rule suggests questions to ask in checking the citizenship of any particular individual. As most concepts do, it rests on other concepts; "U.S. citizen" is defined in terms of the concepts "child" and "territory." Many scientific or mathematical concepts cannot be understood until the terms by which they are defined have been grasped.

In this way concept formation builds on itself. Conceptual classification may be contrasted with another type of classification behaviour called discrimination learning. In discrimination learning, objects are classified on the basis of directly perceived properties such as physical size or shape. The emphasis on concrete physical features in discrimination learning can be contrasted with the more abstract nature of concept formation.

When a stimulus is perceived to match several different past experiences, however, the response may be a compromise, because an object need not bear an all-or-none relation to a set of others in discrimination learning; for example, there is no absolute distinction between tall and short people. While human beings are capable of abstract thought, many of the classifications people make seem to be concrete discriminations.

For example, people may use the same term in a discriminative or conceptual way. A child might use the term policeman in discriminating a man who wears a distinctive uniform, while a lawyer may use the term to represent a civil servant charged with enforcing criminal codes. In practice, people seem to think in ways that combine abstractness and concreteness.

They also may blend class membership with assignment along a scale—e.g., such concepts as

leadership, an abstract quality that people are said to exhibit in varying degrees. The same would apply to vivacity, avarice, and other personality traits. People seem to develop more-complex sets of classes than do other animals, but this does not necessarily mean that human modes of learning are unique.

It may be that all animals have the same basic biochemical machinery for learning, but human animals exhibit it in greater variety. Yet, it seems no more appropriate to account for human concept formation in terms of discrimination learning alone than it does to reduce the functions of a piston engine to chemical reactions.

AGE AND CONCEPTUAL BEHAVIOUR PIAGET'S OBSERVATIONS

Through clinical observations, Swiss psychologist Jean Piaget initiated considerable study of how young children learn concepts that help them cope with their physical surroundings. As models for defining feasible change, concepts are at least as important in such contexts as they are for classification.

Piaget stressed that infants must first learn to distinguish themselves from the external environment. Next they form understandings of the physical world (for example, identifying objects that fall) that allow further exploration of the world. Later in the preschool period, children grasp the concept of spatial localization—objects that are separated in space.

Piaget characterized this period of learning as classifying objects only on the basis of perceptually attractive, concrete physical features (in agreement with laboratory studies of inter dimensional and extradimensional shift). He and others who used his methods reported that preschool children are apt to explain external change in terms of their own needs: a four-year-old is likely to say that a cloud moves "because the sun is in my eyes."

Among children in early primary grades, other interpretations of cause and effect might be expressed by saying a moving cloud "wants to hide the sun." In later primary grades, volitional and passive movement usually become conceptually distinct. By adolescence, children develop an ability to deal analytically with objects apart from their immediate perceptual characteristics.

This marks an understanding of the hierarchies of subclasses within more general classes—for example, a normal child of eleven applies the properties of all living things to the class called birds. Given proper information, by the age of six many children display significant concept-forming abilities.

They ordinarily have considerable linguistic competence, using (though often not being able to explain) such abstract qualifications as present and past tense. Rules of formal logic (such as "new math") can be taught in the elementary grades. Progressive use of abstract concepts seem to reflect both maturation and learning.

AGING

It is generally thought that the potential for learning new abstractions tends to decrease in old age and that in extreme cases (such as senility, severe alcoholism, or brain injury) the deficit is dramatic.

Much less is known, however, about changes in conceptual ability during the active period of adult life, in part because much of the evidence is conflicting.

CONCEPT FORMATION IN ANIMALS

Rats learn to enter lighted or unlighted alleys to get food, and goldfish can be taught to swim toward or away from an object. In such discrimination learning, the animal is said to associate a physical property of the stimulus with its response, and with some contingency of reward or punishment. Thus, while a dog can be trained to come when called, it need not mean that he knows his name in the same sense that a man apparently does.

Most animals show classification behaviour that seems indicative of discrimination learning. A crow will respond to the danger call of a bird of another species—but only if that call resembles the crow's. Chimpanzees, however, which have been observed using sticks as primitive tools, behave as if they have a concept of things that extend reach. Based on considerable evidence of this sort, many are reluctant to say that animals are incapable of abstract thinking.

Most studies aimed at evidence of concept formation among laboratory animals have involved primates, although there are reports of abstract behaviour among other animals such as dogs, dolphins, pigs, and parrots. Monkeys have been taught to solve the oddity problem: presented with two objects of one kind and one of another, they can be trained to select the discrepant one. This behaviour persists even for sets of objects that have never been presented to them before.

The animals behave as if they grasp the general concept of similarity, which is an abstraction rather than a simple discrimination. Animals also have been tested on the ability to learn languages. With great effort, chimpanzees have been taught to “speak” (through physical gestures) and to use correctly a very few words. A much more successful attempt was made by Beatrice and Allan Gardner to teach a chimpanzee, Washoe, the sign language used by deaf people—the gestures of this language apparently being more appropriate to the anatomic structure of chimpanzees.

The chimpanzee learned to use the signs for hat, dog, food, yes, me(self), sorry, funny, go, come, and many others. Washoe's foster son learned 68 words simply through observation, while Washoe's companions learned to use sign language to communicate transactions and reassurance. They also taught others the concepts they had learned.

CONCEPT FORMATION BY MACHINE

Computers can be programmed to process information and to develop classification rules (e.g., they can play chess and make decisions about business or military problems; see artificial intelligence). Essentially, such devices are programmed to mimic the processes of human problem solving. In this sense, machines have formed concepts; but their functions remain relatively impoverished.

Efficient linguistic behaviour has proved particularly difficult to produce in a machine. While many

believe that human thinking can be explained mechanistically in physiological terms, scientists themselves have yet to develop concepts adequate for producing machines that can approach the full range of human talent. Machine translation of language, however, has shown some success.

A Computational Metaphor for the Mind We can imagine the human mind as an evolving store of knowledge, which constantly updates itself from new information built from previous information through some kind of reasoning. In this model, the problems, events, or feelings, et cetera, of which we are consciously aware at any given time trigger a partly, or wholly, unconscious search through the knowledge store for those pieces of information that relate to the problem. Once found, these pieces of information permit the inference of new knowledge.

For instance, a rule that is appropriate for modeling the formation of the new knowledge might look roughly as follows: $c_1, c_2, \dots, c_n \in \text{newc}$.

1) Here c_i and newc are concepts expressed as logic atoms. We call these rules concept formation rules. Occasionally, we may need to test some condition before being able to form a new concept. For example, consider the knowledge that if the speed limit is X and our car's velocity is Y , then we will likely receive a speeding ticket if Y is greater than X . If we also know that we are traveling at 100km/hour and the speed limit is 50km/hour, then we might form the new concept that it is likely we will receive a speeding ticket.

In other words, using a primitive (i.e., system-defined) unary atom test, whose argument contains the test to be performed, we can model the above concept formation rule as the following: $\text{speed_limit}(X), \text{current_speed}(Y) \Rightarrow \text{test}(Y > X), \text{speeding_ticket}(\text{likely})$.

2) We next examine each feature that our concept-formation paradigm must have in order to:

- i. Constitute an adequate, constructivist metaphor for the workings of the human mind,
- ii. Provide some of the flexibility exhibited in human reasoning, and
- iii. Be directly executable.

Information Selection Most of the rules in our knowledge store will be irrelevant to the situation at hand, so the first problem in our model, and in constructivism in general, is the problem of selecting the appropriate information in order to form new concept(s) (which are actually relevant to the problem).

We solve this by using a system that constantly searches for any information that may match the new information (i.e., the initial problem's concepts, or the concepts formed while attempting a solution) and consequently triggers those rules whose left-hand side at least partially matches some of the new information.

If we consider our previous example, then as soon as the new information that the speed limit is 50km/hr and the current speed is 100km/hr arrives in the knowledge store, a search through that

store is initiated which ultimately yields rule (2), whose lefthand side will be matched with unifier $\{X=50, Y=100\}$. The unifier will apply to the rest of the rule as well, and a test to see whether $100 > 50$ will be performed.

Since the test will succeed, the new information speeding ticket(likely) will be added to the knowledge store. Flexible Concept Formation Binary logic is notoriously insufficient for modeling the human mind. The main alternatives are based either on probabilistic or fuzzy reasoning. As pointed out in [4], although probability theory is appropriate for measuring randomness of information, it is inappropriate for measuring the meaning of information.

For many applications, measuring vagueness (e.g. through a membership function that measures the "degree" to which an element belongs to a set) is more important than measuring randomness. While the fuzzy set approach has successfully overcome some of the problems with probabilistic reasoning, it relies on fairly detailed comparative knowledge of the domain being described. Not only must one say that Tom is tall, for instance, but one must also state specifically to what degree.

Here we propose a simpler model based on properties between concepts. Vagueness can be expressed by relaxing the properties between concepts in accordance with a user's criteria. The criteria can be flexibly and modularly adjusted for experimental purposes while still maintaining direct executability. For our model described so far, we need only introduce the following enhancement.

That is, rather than inflexibly allowing a concept to be formed if a test succeeds while disallowing its formation if that test fails, we instead denote those tests which we wish to make flexible as properties. Properties are like any other test, except that their failure does not necessarily result in the failure of the rule itself. Rather, the concept will still be formed and two lists will be associated with it: a list of the properties that the concept satisfies, S, and a list of those that it violates, V.

This allows us to construct possibly incorrect or incomplete concepts while collecting the information as to what way they are not totally justified. The user then has all the information pertaining to the construction of a particular concept and can interpret these results in a much more informed, holistic way. This is in contrast to the blind computation of the degree of randomness or vagueness from those assigned a priori to each individual piece of the reasoning puzzle.

In other cases, however, it will be more appropriate for the new concepts to replace the concepts that led to it. For instance, imagine a rule which uses the concept that a teacher is free at time T and that a parent is free at the same time T in order to add the concept that a meeting between these two individuals should be scheduled for time T. Obviously, once a meeting at time T has been arranged between them, they can no longer be considered as free at that time. Yet another type of rule is needed to remove redundant concepts such as "John must meet Alice at six" and "Alice must meet John at six".

In this paper we primarily use the first type of rule, but all three types maintain computational counterparts within our model. Information Selection Most of the rules in our knowledge store will be irrelevant to the situation at hand, so the first problem in our model, and in constructivism in general, is the problem of selecting the appropriate information in order to form new concept(s) (which are actually relevant to the problem).

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FLEXIBLE CONCEPT FORMATION

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Transforming the Knowledge Store Just as rule selection follows automatically from the system's normal search for applicable rules, the transformation of the knowledge store is achieved as a side effect of the system's normal procedure of applying a concept formation rule. In some cases the newly formed concepts will need to coexist with the concepts that participated in their formation, such as when forming a concept based on some transitive property.

In other cases, however, it will be more appropriate for the new concepts to replace the concepts that led to it. For instance, imagine a rule which uses the concept that a teacher is free at time T and that a parent is free at the same time T in order to add the concept that a meeting between these two individuals should be scheduled for time T. Obviously, once a meeting at time T has been arranged between them, they can no longer be considered as free at that time. Yet another type of rule is needed to remove redundant concepts such as "John must meet Alice at six" and "Alice must meet John at six". In this paper we primarily use the first type of rule, but all three types maintain computational counterparts within our model.

2.4 Making Decisions

It is also interesting to note that decisions also follow from the normal operation of the rules.

That is, depending on which of the currently considered concepts matches which rule, the decision on the appropriate rule to trigger is made, determining which new concepts will be formed. Newly added concepts then help further trigger rules, and so on until a solution is found or no new, useful, concepts can be constructed.

2.6 Cognitive Structure

Cognitive structure (such as schemas or mental models) provides meaning and organization to experiences and allows individuals to draw conclusions beyond the information actually given.

In our model, cognitive structure is provided by the rules themselves. The properties that are required between the concepts a given rule is trying to relate are particularly important, both for the formation of new concepts and achieving human-like flexibility.

CONCEPT FORMATION PROGRAMS/GRAMMARS

It is clear that CHRs can provide most of the features needed for a computational incarnation of our concept formation rules model: - Information selection is a side effect of the CHR engine's search over applicable rules. -

The transformation of information takes place automatically when a rule triggers, in the way sanctioned by the rule (namely, propagation rules update the knowledge store with the concept

newly formed). - Hypotheses can be made through assumptions.

In addition, we need to provide flexible cognitive structure through relax able, directly executable properties between concepts. This is achieved through concept formation rules, which have the same general form as CHR rules except that the guard may include any number of property calls for properties that have been defined by the user.

These calls are automatically handled by the system, provided that the user defines the properties as follows: a) A property must be named and defined through the binary predicate `prop/2`, whose first argument is the property's name and whose second argument is the list of arguments that are involved in checking the property and signaling the results.

Scheduled Meetings Consider the problem of scheduling meeting events between two groups of people given the availability of each person and the specific individuals that must meet. Regular scheduling software systems typically work in stages. The schedule is partially assigned until it reaches a meeting that it cannot schedule.

By re-shuffling the other meetings that have already been scheduled, it is then often possible to open up matching timeslots for the individuals in question. Our concept formation framework allows us to produce a higher-level solution in a concise and effective manner.

CONCLUSIONS

We have shown a powerful yet relatively simple cognitive model for concept formation inspired by constructivism. The methodology we present for implementing directly executable concept formation paradigms generalizes parsing methods we have developed specifically for natural language processing [6]. We have discussed our methodology for a directly executable, CHR-based rendition of this model, and exemplified its promise through two examples: (time) resource allocation, and error detection and correction.

Other approaches need considerable more apparatus to solve the same problem (for example, [7] uses a fairly involved abductive model based on CHRGs for error detection and correction in string processing problem domains). We are also currently working on applying concept formation to the problem of identifying biomarkers in cancer diagnosis systems [8].

STRATEGIES; ROLE OF CONCEPTS IN THINKING

As discussed in the previous section, you may recall that the potential for creative thinking is in all of us. It is not limited to a few talented artists or scientists or to a chosen few. The expression of creative thinking may vary from individual to individual. Although hereditary factors are important in determining the extent to which one can be creative, environmental factors facilitate or hamper the development of creative thinking abilities.

Research in different countries including India has shown a slump in the level of creative thinking of

school children at different stages due to environmental factors. On the other hand, research also indicates that children from lower socio-economic groups, ethnic and minority groups have substantial untapped creativity and that they are creative in many different ways.

Research has also shown that all of us can make better use of our abilities for creative thinking through practice and training. We can become more imaginative, flexible, and original in solving day-to-day problems creatively and effectively. Development of creative thinking is important for one's personal growth and fulfilment.

BARRIERS TO CREATIVE THINKING

The first step in developing creative thinking is to identify inhibiting factors that impede creative expression and then make conscious attempts to overcome the same. As we are discussing, you may analyse how you approach your tasks and problems.

There are blocks to creative thinking which can be categorised as habitual, perceptual, motivational, emotional, and cultural. Although much habitual learning is necessary for smooth and efficient functioning within the daily routine, the tendency to be overpowered by habits particularly in one's ways of thinking.

STRATEGIES FOR CREATIVE THINKING

Research on characteristics of creative people has revealed that there are certain attitudes, dispositions, and skills which facilitate creative thinking. Here are some strategies to help you enhance your creative thinking abilities and skills:

- Become more aware and sensitive to be able to notice and respond to feelings, sights, sounds, textures around you. Spot problems, missing information, anomalies, gaps, deficiencies, and so on. Try to notice contradictions and incompleteness in situations that others may not do.

For this, cultivate the habit of wider reading, exposure to a variety of information, and develop the art of asking questions, pondering over the mysteries of situations and objects.

- Generate as many ideas, responses, solutions or suggestions on a given task or situation to increase your flow of thoughts. Try deliberately to look for multiple angles of a task and situation to increase flexibility in your thinking.

It could be, for example, thinking of alternative arrangements of furniture in a room to generate more space, different ways of conversing with people, looking for costs and benefits of a course of study or career, looking for ways of dealing with an angry friend, helping others, etc.

- Osborn's Brainstorming technique can be used to increase fluency and flexibility of ideas to open-ended situations. Brainstorming is based on the principle that producing ideas should be kept separate from the evaluation of their worth. The basic assumption is to let them think

freely and the tendency to put judgment on the worth of ideas may be postponed, i.e. imagination should be given priority over judgment till all the ideas are exhausted.

This helps in increasing the fluency of ideas and piling up alternatives. Brainstorming can be practised by playing brainstorming games with family members and friends keeping its principles in mind. Use of checklists and questions often provide a new twist for ideas like, What other changes? What else? In how many ways could it be done? What could be the other uses of this object? and so on.

- Originality can be developed by practicing fluency, flexibility, habit of associative thinking, exploring linkages, and fusing distinct or remote ideas. A creative thinker, it is said, may not evolve new ideas but evolve new combination of ideas. It is the chain of thoughts and cross-fertilisation of ideas that may bring out something new.
- The idea of the 'rocking chair' has come from the combination of 'chair' and 'seesaw'. Practice making unusual and unexpected associations using analogies. Sometimes finding original ideas/solutions requires a dramatic shift of focus which can be facilitated by asking oneself : what is the opposite of the commonplace or usual solution to the problem? Allow conflicting thoughts to co-exist. Looking for solutions opposite to the obvious may lead to original solutions.
- Engage yourself more frequently in activities which require use of imagination and original thinking rather than routine work according to your interest and hobbies. It may be decorating the house, improvising or redesigning of old objects, making use of waste products in multiple ways, completing incomplete ideas in unique ways, giving new twist to stories or poems, developing riddles, puzzles, solving mysteries and so on.
- Never accept the first idea or solution. Many ideas die because we reject them thinking that the idea might be a silly idea. You have to first generate a number of possible ideas or solutions, then select the best from among them.
- Get a feedback on the solutions you decide on from others who are less personally involved in the task.
- Try to think of what solutions someone else may offer for your problems.
- Give your ideas the chance to incubate. Allowing time for incubation between production of ideas and the stage of evaluation of ideas, may bring in the 'Aha!' experience.
- Sometimes ideas cluster like branches of a tree. It is useful to diagram your thinking so that you can follow each possible branch to its completion.
- Resist the temptation for immediate reward and success and cope with the frustration and failure. Encourage self-evaluation. • Develop independent thinking in making judgments, figuring out things without any help or resources.
- Visualize causes and consequences and think ahead, predicting things that have never

happened, like, suppose the time starts moving backwards, what would happen? If we had no zero?, etc.

- Be aware of your own defenses concerning the problem. When we feel threatened by a problem, we are less likely to think of creative ideas.
- Last but not the least, be self-confident and positive. Never undermine your creative potential. Experience the joy of your creation.

TYPES OF REASONING

Reasoning is the process of using existing knowledge to draw conclusions, make predictions, or construct explanations. Three methods of reasoning are the deductive, inductive, and abductive approaches.

- 1) **Deductive reasoning: conclusion guaranteed** Deductive reasoning starts with the assertion of a general rule and proceeds from there to a guaranteed specific conclusion. Deductive reasoning moves from the general rule to the specific application: In deductive reasoning, if the original assertions are true, then the conclusion must also be true.

Assuming the propositions are sound, the rather stern logic of deductive reasoning can give you absolutely certain conclusions. However, deductive reasoning cannot really increase human knowledge (it is nonampliative) because the conclusions yielded by deductive reasoning are tautologies-statements that are contained within the premises and virtually self-evident.

Therefore, while with deductive reasoning we can make observations and expand implications, we cannot make predictions about future or otherwise non-observed phenomena.

- 2) **Inductive reasoning: conclusion merely likely** Inductive reasoning begins with observations that are specific and limited in scope, and proceeds to a generalized conclusion that is likely, but not certain, in light of accumulated evidence. You could say that inductive reasoning moves from the specific to the general. Much scientific research is carried out by the inductive method: gathering evidence, seeking patterns, and forming a hypothesis or theory to explain what is seen.

Conclusions reached by the inductive method are not logical necessities; no amount of inductive evidence guarantees the conclusion. This is because there is no way to know that all the possible evidence has been gathered, and that there exists no further bit of unobserved evidence that might invalidate my hypothesis.

Because inductive conclusions are not logical necessities, inductive arguments are not simply true. Rather, they are cogent: that is, the evidence seems complete, relevant, and generally convincing, and the conclusion is therefore probably true. Nor are inductive arguments simply false; rather, they are not cogent.

It is an important difference from deductive reasoning that, while inductive reasoning cannot

yield an absolutely certain conclusion, it can actually increase human knowledge (it is ampliative). It can make predictions about future events or as-yet unobserved phenomena. For example, Albert Einstein observed the movement of a pocket compass when he was five years old and became fascinated with the idea that something invisible in the space around the compass needle was causing it to move.

This observation, combined with additional observations (of moving trains, for example) and the results of logical and mathematical tools (deduction), resulted in a rule that fit his observations and could predict events that were as yet unobserved.

- 3) **Abductive reasoning: taking your best shot** Abductive reasoning typically begins with an incomplete set of observations and proceeds to the likeliest possible explanation for the set. Abductive reasoning yields the kind of daily decision-making that does its best with the information at hand, which often is incomplete.

A medical diagnosis is an application of abductive reasoning: given this set of symptoms, what is the diagnosis that would best explain most of them? Likewise, when jurors hear evidence in a criminal case, they must consider whether the prosecution or the defense has the best explanation to cover all the points of evidence. While there may be no certainty about their verdict, since there may exist additional evidence that was not admitted in the case, they make their best guess based on what they know.

While cogent inductive reasoning requires that the evidence that might shed light on the subject be fairly complete, whether positive or negative, abductive reasoning is characterized by lack of completeness, either in the evidence, or in the explanation, or both. A patient may be unconscious or fail to report every symptom, for example, resulting in incomplete evidence, or a doctor may arrive at a diagnosis that fails to explain several of the symptoms. Still, he must reach the best diagnosis he can.

LANGUAGE AND THOUGHT

Till now, we have discussed the nature and meaning of thinking and how thinking is based on images and concepts. We have also discussed the various processes of thought. Throughout the discussion did you feel that words or language are essential to express what we think?

This section examines the relationship between language and thought: that language determines thought, that thought determines language, and that thought and language have different origins. Let us examine these three viewpoints in some detail.

LANGUAGE AS DETERMINANT OF THOUGHT

In Hindi and other Indian languages we use a number of different words for various kinship relationships. We have different terms for mother's brother, father's elder brother, father's younger

brother, mother's sister's husband, father's sister's husband, and so on. An English person uses just one word uncle to describe all these kinship relationships.

In the English language there are dozens of words for colours whereas some tribal languages have only two to four colour terms. Do such differences matter for how we think? Does an Indian child find it easier to think about and differentiate between various kinship relationships compared to her Englishspeaking counterpart? Does our thinking process depend on how we describe it in our language? Benjamin Lee Whorf was of the view that language determines the contents of thought.

This view is known as linguistic relativity hypothesis. In its strong version, this hypothesis holds what and how individuals can possibly think is determined by the language and linguistic categories they use (linguistic determinism). Experimental evidence, however, maintains that it is possible to have the same level or quality of thoughts in all languages depending upon the availability of linguistic categories and structures. Some thoughts may be easier in one language compared to another.

Thought as Determinant of Language The noted Swiss psychologist, Jean Piaget believed that thought not only determines language, but also precedes it. Piaget argued that children form an internal representation of the world through thinking. For example, when children see something and later copy it (a process called imitation), thinking does take place, which does not involve language. A child's observation of other's behaviour and imitation of the same behaviour, no doubt involves thinking but not language. Language is just one of the vehicles of thinking.

As actions become internalised, language may affect children's range of symbolic thinking but is not necessary for the origins of thought. Piaget believed that though language can be taught to children, understanding of the words require knowledge of the underlying concepts (i.e. thinking). Thus, thought is basic, and necessary if language is to be understood. Different Origins of Language and Thought.

The Russian psychologist, Lev Vyogotsky, argued that thoughts and language develop in a child separately until about two years of age, when they merge. Before two years thought is preverbal and is experienced more in action (Piaget's sensory motor stage). The child's utterances are more automatic reflexes - crying when uncomfortable - than thought based. Around two years of age, the child expresses thought verbally and her/his speech reflects rationality. Now children are able to manipulate thoughts using soundless speech.

He believed that during this period the development of language and thinking become interdependent; the development of conceptual thinking depends upon the quality of inner speech and vice versa. Thought is used without language when the vehicle of thinking is non-verbal such as visual or movement related. Language is used without thought when expressing feelings or exchanging pleasantries, for example "Good morning! How are you?" "Very well,

MEANING AND NATURE OF LANGUAGE

In the previous section we discussed the relationship between language and thought. In this section, we will examine how human beings acquire and use language in different age groups. Think for a moment: what would have happened if you did not have a language to express whatever you wanted to say? In the absence of language you will not be able to communicate your ideas and feelings, nor will you have the opportunity to know or have access to what others think and feel.

As a child when you first started saying “ma..ma..ma.”, it not only gave you tremendous boost to continue repeating this activity but also was a great moment of joy for your parents and other caregivers. Slowly you learnt to say ‘ma’ and ‘papa’ and sometime later combined two or more words to communicate your needs, feelings, and thoughts. You learnt words appropriate for situations and also learnt the rules of putting these words in sentences.

Initially you learnt to communicate in the language being used at home (usually the mother-tongue), went to school and learnt the formal language of instruction (in many cases this language is different from the mother-tongue), and were promoted to higher grades and learnt other languages. If you look back, you will realise that your journey from crying and saying “ma..ma..ma” to the attainment of mastery in not one but many languages, has been a fascinating one. In this section we shall be discussing the salient features of language acquisition.

You have been using language all your life. Now try to define accurately what it is that you have been using. Language consists of a system of symbols organised by means of certain rules that we use to communicate with each other. You will notice that language has three basic characteristics: (a) the presence of symbols, (b) a set of rules to organise these symbols, and (c) communication. Here we shall be discussing these three characteristics of language.

The first characteristic of language is that it involves symbols. Symbols represent something or someone else, for example, the place where you live is called ‘home’, the place where you study is called ‘school’, the thing that you eat is called ‘food’. Words like home, school, food, and numerous other words do not in themselves carry any meaning.

When these words are associated with some objects/ events they attain meaning and we begin recognising those objects/events, etc. with particular words (symbols). We use symbols while thinking. The second characteristic of language is that it involves rules. While combining two or more words we usually follow a definite and accepted order of presenting these words.

For example, one would most likely say “I am going to school” and not “school am going I”. The third characteristic of language is that it is used for communicating one’s thought, ideas,

DEVELOPMENT OF LANGUAGE LANGUAGE

is a complex system and unique to human beings. Psychologists have tried to teach sign language,

use of symbols to chimpanzees, dolphins, parrots, etc. But it is observed that, human language is more complex, creative, and spontaneous than the system of communication other animals can learn. There is also a great deal of regularity with which children all over the world seem to be learning the language or languages to which they are exposed.

When you compare individual children, you find that they differ in intentions, and feelings to others. On many occasions we communicate through the use of our body parts, called gestures or postures. This type of communication is called non-verbal communication. Some people who cannot use oral speech, like the ones with severe hearing and speech problems, communicate through signs. Sign language is also a form of language.

great deal in the rate of their language development as well as in how they go about it. But when you take a general view of children's acquisition of language all over the world you find some predictable pattern in which children proceed from almost no use of language to the point of becoming competent language users.

Language develops through some of the stages discussed below. Newborn babies and young infants make a variety of sounds, which gradually get modified to resemble words. The first sound produced by babies is crying. Initial crying is undifferentiated and similar across various situations. Gradually, the pattern of crying varies in its pitch and intensity to signify different states such as hunger, pain, and sleepiness, etc.

These differentiated crying sounds gradually become more meaningful cooing sounds (like 'aaa', 'uuu', etc.) usually to express happiness. At around six months of age children enter the babbling stage. Babbling involves prolonged repetition of a variety of consonants and vowel sounds (for example, da—, aa—, ba—). By about nine months of age these sounds get elaborated to strings of some sound combinations, such as 'dadadadada' into repetitive patterns called echolalia. While the early babblings are random or accidental in nature, the later babblings seem to be imitative of adult voices. Children show some understanding of a few words by the time they are six months old. Around the first birthday (the exact age varies from child to child) most children enter the one-word- stage. Their first word usually contains one syllable – ma or da, for instance.

Gradually they move to one or more words which are combined to form whole sentences or phrases. So they are called holophrases. When they are 18 to 20 months of age, children enter a two-word stage and begin to use two words together. The two-word stage exemplifies telegraphic speech. Like telegrams (got admission, send money) it contains mostly nouns and verbs.

Close to their third birthday, i.e. beyond two-and-a-half years, children's language development gets focused on rules of the language they hear. Comparisons of different languages can lead one to pay attention to 'universals'—the ways in which all languages are similar, and to 'particulars' — the ways in which each individual language, or type of language, is special, even unique.

Linguists and other social scientists interested in universals have formulated theories to describe and explain human language and human language behavior in general terms as species-specific capacities of human beings. However, the idea that different languages may influence thinking in different ways has been present in many cultures and has given rise to many philosophical treatises.

Because it is so difficult to pin down effects of a particular language on a particular thought pattern, this issue remains unresolved. It comes in and out of fashion and often evokes considerable energy in efforts to support or refute it.

LANGUAGE USE

As we have discussed earlier, language use involves knowing socially appropriate ways of communication. Knowledge of vocabulary and syntax of a language does not ensure proper use of language to achieve the purpose of communication in a variety of social situations. When we use language we have various pragmatic intentions such as requesting, asking, thanking, demanding, etc.

In order to effectively serve these social goals, language use must be pragmatically correct or contextually appropriate besides being grammatical and meaningful. Children often have difficulty with choice of appropriate utterances for politeness or for requests and their use of language conveys a demand or a command instead of a polite request. When children are engaged in conversations, they also have difficulty in taking turns in speaking and listening like adults.

RELATIVITY AND DETERMINISM

There are two problems to confront in this arena: linguistic relativity and linguistic determinism. Relativity is easy to demonstrate. In order to speak any language, you have to pay attention to the meanings that are grammatically marked in that language.

For example, in English it is necessary to mark the verb to indicate the time of occurrence of an event you are speaking about: It's raining; It rained; and so forth. In Turkish, however, it is impossible to simply say, 'It rained last night'.

This language, like many American Indian languages, has more than one past tense, depending on one's source of knowledge of the event. In Turkish, there are two past tenses—one to report direct experience and the other to report events that you know about only by inference or hearsay.

Thus, if you were out in the rain last night, you will say, 'It rained last night' using the past-tense form that indicates that you were a witness to the rain; but if you wake up in the morning and see the wet street and garden, you are obliged to use the other past-tense form—the one that indicates that you were not a witness to the rain itself.

Differences of this sort have fascinated linguists and anthropologists for centuries. They have reported hundreds of facts about 'exotic' languages, such as verbs that are marked or chosen according to the shape of an object that is being handled (Navajo) or for the relative ages of speaker and hearer (Korean). Such facts are grist for the mill of linguistic relativity. And, indeed, they can be found quite readily in 'nonexotic' languages as well.

To cite a fact about English that is well known to linguists: It is not appropriate to say Richard Nixon has worked in Washington, but it is perfectly OK to say Gerald Ford has worked in Washington. Why? English restricts the present perfect tense ('has worked') to assertions about people who are alive. Exotic! Proponents of linguistic determinism argue that such differences between languages influence the ways people think—perhaps the ways in which whole cultures are organized.

Among the strongest statements of this position are those by Benjamin Lee Whorf and his teacher, Edward Sapir, in the first half of this century—hence the label, 'The Sapir-Whorf Hypothesis', for the theory of linguistic relativity and determinism. Whorf proposed: 'We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way—an agreement that holds throughout our speech community and is codified in the patterns of our language' (Whorf, 1940; in Carroll, 1956, pp. 213-4).

And, in the words of Sapir: 'Human beings...are very much at the mercy of the particular language which has become the medium of expression for their society. ...The fact of the matter is that the "real world" is to a large extent unconsciously built up on the language habits of the group' (Sapir, 1929; in Manlbaum, 1958, p. 162).

INVESTIGATING LANGUAGE AND THOUGHT

How can such bold claims be substantiated beyond examination of individual languages themselves? If one takes the hypothesis seriously, it should be possible to show that Turks are more sensitive to evidence than are Americans, but that Americans are more aware of death than Turks. Clearly, the hypothesis cannot be supported on so grand a level.

Rather, experimental psychologists and cognitive anthropologists have sought to find small differences, on controlled tasks, between speakers of various languages. Maybe Navajos are somewhat more sensitive to shapes of objects, for example. The results have been mixed. In most cases, human thought and action are overdetermined by an array of causes, so the structure of language may not play a central causal role.

Linguistic determinism can best be demonstrated in situations in which language is the principal means of drawing people's attention to a particular aspect of experience. For example, if you regularly speak a language in which you must pick a form of second-person address (you) that marks your social relationship to your interlocutor.

such as Spanish *tu* ('you' for friends and family and for those socially subordinate) vs. *usted* ('you'

for those socially above in status or for those with whom you have no close connection) or French tu versus vous—you must categorize every person you talk to in terms of the relevant social dimensions. (As a thought experiment of linguistic determinism, think of the categorizations of social relationships that would have to be made if Spanish became the common language of the United States.)

PROBLEM SOLVING

How do we proceed while repairing a broken cycle, or planning a summer tour or patching up a broken friendship? In some cases the solution is reached quickly as in repair of a bicycle based on immediately available cues whereas others are more complex and require time and effort. Problem solving is thinking that is goal-directed.

Almost all our day-to-day activities are directed towards a goal. Here it is important to know that problems are not always in the form of obstacles or hurdles that one faces. It could be any simple activity that you perform to reach a defined goal, for example, preparing a quick snack for your friend who has just arrived at your place. In problem solving there is an initial state (i.e. the problem) and there is an end state (the goal).

These two anchors are connected by means of several steps or mental operations. would clarify your understanding of various steps through which one solves a problem. You can try out the problems given in Activity 8.3 with your friends and observe how they are approaching the problem. You can ask them the steps they follow while solving these problems From organizing your movie collection to deciding to buy a house, problem-solving makes up a large part of daily life.

Problems can range from small (solving a single math equation on your homework assignment) to very large (planning your future career). In cognitive psychology, the term problem-solving refers to the mental process that people go through to discover, analyze, and solve problems.¹ This involves all of the steps in the problem process, including the discovery of the problem, the decision to tackle the issue, understanding the problem, researching the available options and taking actions to achieve your goals.

Before problem-solving can occur, it is important to first understand the exact nature of the problem itself. If your understanding of the issue is faulty, your attempts to resolve it will also be incorrect or flawed.

MENTAL PROCESSES AT WORK DURING PROBLEM-SOLVING

There are a number of mental processes at work during problem-solving. These include:

- Perceptually recognizing a problem
- Representing the problem in memory
- Considering relevant information that applies to the current problem
- Identify different aspects of the problem
- Labeling and describing the problem

PROBLEM-SOLVING STRATEGIES

- **Algorithms:** An algorithm is a step-by-step procedure that will always produce a correct solution. A mathematical formula is a good example of a problem-solving algorithm. While an algorithm guarantees an accurate answer, it is not always the best approach to problem-solving. This strategy is not practical for many situations because it can be so time-consuming.

For example, if you were trying to figure out all of the possible number combinations to a lock using an algorithm, it would take a very long time!

- **Heuristics:** A heuristic is a mental rule-of-thumb strategy that may or may not work in certain situations. Unlike algorithms, heuristics do not always guarantee a correct solution. However, using this problem-solving strategy does allow people to simplify complex problems and reduce the total number of possible solutions to a more manageable set.
- **Trial and Error:** A trial-and-error approach to problem-solving involves trying a number of different solutions and ruling out those that do not work. This approach can be a good option if you have a very limited number of options available. If there are many different choices, you are better off narrowing down the possible options using another problem-solving technique before attempting trial-and-error.
- **Insight:** In some cases, the solution to a problem can appear as a sudden insight. According to researchers, insight can occur because you realize that the problem is actually similar to something that you have dealt with in the past, but in most cases, the underlying mental processes that lead to insight happen outside of awareness.

OBSTACLES IN PROBLEM-SOLVING

Of course, problem-solving is not a flawless process. There are a number of different obstacles that can interfere with our ability to solve a problem quickly and efficiently. Researchers have described a number of these mental obstacles, which include functional fixedness, irrelevant information, and assumptions.

- **Functional Fixedness:** This term refers to the tendency to view problems only in their customary manner. Functional fixedness prevents people from fully seeing all of the different options that might be available to find a solution.
- **Irrelevant or Misleading Information:** When you are trying to solve a problem, it is important to distinguish between information that is relevant to the issue and irrelevant data that can lead to faulty solutions. When a problem is very complex, the easier it becomes to focus on misleading or irrelevant information.
- **Assumptions:** When dealing with a problem, people often make assumptions about the constraints and obstacles that prevent certain solutions.
- **Mental Set:** Another common problem-solving obstacle is known as a mental set, which is the tendency people have to only use solutions that have worked in the past rather than looking for

alternative ideas.

A mental set can often work as a heuristic, making it a useful problem-solving tool. However, mental sets can also lead to inflexibility, making it more difficult to find effective solutions.

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A particular strategy would sometimes help in solving a new problem. However, this tendency also creates a mental rigidity that obstructs the problem solver to think of any new rules or strategies. Thus, while in some situations mental set can enhance the quality and speed of problem solving, in other situations it hinders problem solving.

You might have experienced this while solving mathematical problems. After completing a couple of questions, you form an idea of the steps that are required to solve these questions and subsequently you go on following the same steps, until a point where you fail. At this point you may experience difficulty in avoiding the already used steps. Those steps would interfere in your thought for new strategies.

However, in day-to-day activities we often rely on past experiences with similar or related problems. Like mental set, functional fixedness in problem solving occurs when people fail to solve a problem because they are fixed on a thing's usual function. If you have ever used a hardbound book to hammer a nail, then you have overcome functional fixedness.

LACK OF MOTIVATION

People might be great at solving problems, but all their skills and talents are of no use if they are not motivated. Sometimes people give up easily when they encounter a problem or failure in implementing the first step. Therefore, there is a need to persist in their effort to find a solution.

DECISION-MAKING

Inductive and deductive reasonings allow us to make judgments. In judgment we draw conclusions, form opinions, evaluate events, objects, based on knowledge and available evidences. Consider this example, the man is very talkative, likes to mix with people, can convince others with ease – he would be most suitable for a salesperson's job.

Our judgment of this person is based on the specific characteristics of an expert salesperson. Here we will discuss how we make decisions and judgments. Sometimes judgments are automatic and require no conscious effort by the person and occur as a matter of habit, for example, applying brakes on seeing the red light.

However, evaluating a novel or a literary text requires reference to your past knowledge and experience. Judging the beauty of a painting would involve your personal preferences. Thus our judgments are not independent of our beliefs and attitudes. We also make changes in our judgments based on newly acquired information. Consider this example.

A new teacher joins the school, students make on-the-spot judgment of the teacher as being very strict. However, in subsequent classes, they closely interact with the teacher and make changes in their evaluation. Now they judge the teacher to be extremely student-friendly. Many of the problems you solve each day require you to make decisions. What to wear for the party? What to eat for dinner? What to say to your friend?

The answer to all these lies in picking or choosing one of several choices. In decision-making, we sometimes choose among options based on choices of personal significance. Judgment and decision-making are interrelated processes. In decision-making the problem before us is to choose among alternatives by evaluating the cost and benefit associated with each alternative.

For example, when you have the option to choose between psychology and economics as subjects in Class XI, your decision would be based upon your interest, future prospects, availability of books, efficiency of teachers, etc. You could evaluate them by talking to seniors and faculty members and attending a few classes, etc. Decision-making differs from other types of problem solving.

In decision-making we already know the various solutions or choices and one has to be selected. Suppose your friend is a very good player of badminton. S/he is getting an opportunity to play at the state level. At the same time the final examination is approaching and s/he needs to study hard for it. S/he will have to choose between two options, practising for badminton or studying for the final examination.

In this situation her/his decision will be based upon evaluation of all possible outcomes. You would observe that people differ in their priorities and therefore their decisions will differ. In real-life situations we take quick decisions and therefore, it is not possible always to evaluate every situation thoroughly and exhaustively.

The decision-making process though a logical one is a difficult task. All decisions can be categorized into the following three basic models.

- 1) The Rational/Classical Model.
- 2) The Administrative or Bounded Rationality Model.
- 3) The Retrospective Decision-Making Model.

All models are beneficial for understanding the nature of decision-making processes in enterprises or organisations. All models are based on certain assumptions on which the decisions are taken.

- 1) **THE RATIONAL/CLASSICAL MODEL:** The rational model is the first attempt to know the decision-making process. It is considered by some as the classical approach to understand the decision-making process. The classical model gave various steps in decision-making process which have been discussed earlier.

FEATURES OF CLASSICAL MODEL

- 1) Problems are clear.

- 2) Objectives are clear.
- 3) People agree on criteria and weights.
- 4) All alternatives are known.
- 5) All consequences can be anticipated.
- 6) Decision makes are rational.

- i. They are not biased in recognizing problems.
- ii. They are capable of processing all relevant information
- iii. They anticipate present and future consequences of decisions.
- iv. They search for all alternatives that maximizes the desired results.

2) **BOUNDED RATIONALITY MODEL OR ADMINISTRATIVE MAN MODEL:** Decision-making involve the achievement of a goal. Rationality demands that the decision-maker should properly understand the alternative courses of action for reaching the goals. He should also have full information and the ability to analyse properly various alternative courses of action in the light of goals sought.

There should also be a desire to select the best solutions by selecting the alternative which will satisfy the goal achievement. Herbert A. Simon defines rationality in terms of objective and intelligent action. It is characterized by behavioural nexus between ends and means. If appropriate means are chosen to reach desired ends the decision is rational. Bounded Rationality model is based on the concept developed by Herbert Simon.

This model does not assume individual rationality in the decision process. Instead, it assumes that people, while they may seek the best solution, normally settle for much less, because the decisions they confront typically demand greater information, time, processing capabilities than they possess. They settle for "bounded rationality or limited rationality in decisions. This model is based on certain basic concepts.

A) SEQUENTIAL ATTENTION TO ALTERNATIVE SOLUTION: Normally it is the tendency for people to examine possible solution one at a time instead of identifying all possible solutions and stop searching once an acceptable (though not necessarily the best) solution is found.

B) HEURISTIC: These are the assumptions that guide the search for alternatives into areas that have a high probability for yielding success.

(C) SATISFICING: Herbert Simon called this "satisficing" that is picking a course of action that is satisfactory or "good enough" under the circumstances. It is the tendency for decision makers to accept the first alternative that meets their minimally acceptable requirements rather than pushing them further for an alternative that produces the best results.

Satisficing is preferred for decisions of small significance when time is the major constraint or where most of the alternatives are essentially similar. Thus, while the rational or classic

model indicates how decisions should be made (i.e. it works as a prescriptive model), it falls somewhat short concerning how decisions are actually made (i.e.as a descriptive model).

3) **RETROSPECTIVE DECISION MODEL (IMPLICIT FAVOURITE MODEL):**This decision-making model focuses on how decision-makers attempt to rationalise their choices after they have been made and try to justify their decisions. This model has been developed by Per Soelberg.

He made an observation regarding the job choice processes of graduating business students and noted that, in many cases, the students identified implicit favorites (i.e. the alternative they wanted) very early in the recruiting and choice process. However, students continued their search for additional alternatives and quickly selected the best alternative.

The total process is designed to justify, through the guise of scientific rigor, a decision that has already been made intuitively. By this means, the individual becomes convinced that he or she is acting rationally and taking a logical, reasoned decision on an important topic.

SOME COMMON ERRORS IN DECISION-MAKING

Since the importance of the right decision cannot be overestimated enough for the quality of the decisions can make the difference between success and failure. Therefore, it is imperative that all factors affecting the decision be properly looked into and fully investigated.

In addition to technical and operational factors which can be quantified and analyzed, other factors such as personal values, personality traits, psychological assessment, perception of the environment, intuitional and judgmental capabilities and emotional interference must also be understood and credited.

Some researchers have pinpointed certain areas where managerial thinking needs to be re-assessed and where some common mistakes are made. These affect the decision-making process as well as the efficiency of the decision and must be avoided.

SOME OF THE ERRORS RE:

- (I) **INDECISIVENESS:** Decision-making is full of responsibility. The fear of its outcome can make some people timid about taking a decision. This timidity may result in taking a long time for making a decision and the opportunity may be lost. This trait is a personality trait and must be looked into seriously. The managers must be very quick in deciding.
- (II) **POSTPONING THE DECISION UNTIL THE LAST MOMENT:**This is a common feature which results in decision-making under pressure of time which generally eliminates the possibility of thorough analysis of the problem which is time consuming as well as the establishment and comparison of all alternatives. Many students, who postpone studying until near their final

exams, usually do not do well in the exams.

Even though some managers work better under pressures, most often an adequate time period is required to look objectively at the problem and make an intelligent decision. Accordingly, a decision plan must be formulated; time limits must be set for information gathering, analysis and selection of a course of action.

(III) **A FAILURE TO ISOLATE THE ROOT CAUSE OF THE PROBLEM:** It is a common practice to cure the symptoms rather than the causes. For example, a headache may be on account of some deep-rooted emotional problem. A medicine for the headache would not cure the problem. It is necessary to separate the symptoms and their causes.

(IV) **A FAILURE TO ASSESS THE RELIABILITY OF INFORMATIONAL SOURCES:** Very often, we take it for granted that the other person's opinion is very reliable and trustworthy, and we do not check for the accuracy of the information ourselves.

Many a time, the opinion of the other person is taken, so that if the decision fails to bring the desired results, the blame for the failure can be shifted to the person who had provided the information. However, this is a poor reflection on the manager's ability and integrity and the manager must be held responsible for the outcome of the decision.

(V) **THE METHOD FOR ANALYSING THE INFORMATION MAY NOT BE THE SOUND ONE:** Since most decisions and especially the non-programmed ones have to be based upon a lot of information and factors, the procedure to identify, isolate and select the useful information must be sound and dependable.

Usually, it is not operationally feasible to objectively analyze more than five or six pieces of information at a time. Hence, a model must be built which incorporates and handles many variables in order to aid the decision makers. Also, it will be desirable to define the objectives, criteria and constraints as early in the decision-making process as possible.

This would assist in making the process more formal so that no conditions or alternatives would be overlooked. Following established procedures would eliminate the efforts of emotions which may cloud the process and rationality.

(VI) **DO IMPLEMENT THE DECISION AND FOLLOW THROUGH:** Making a decision is not the end of the process, rather it is a beginning. Implementation of the decision and the results obtained are the true barometer of the quality of the decision. Duties must be assigned, deadlines must be set, evaluation process must be established and contingency plans must be prepared in advance. The decisions must be implemented whole heartedly to get the best results.

METACOGNITION: METACOGNITIVE KNOWLEDGE AND METACOGNITIVE REGULATION

Metacognitive knowledge

Metacognitive strategies refers to methods used to help students understand the way they learn; in other words, it means processes designed for students to 'think' about their 'thinking'. Teachers who use metacognitive strategies can positively impact students who have learning disabilities by helping them to develop an appropriate plan for learning information, which can be memorized and eventually routine.

As students become aware of how they learn, they will use these processes to efficiently acquire new information, and consequently, become more of an independent thinker. Below are three metacognitive strategies, which all include related resources, that can be implemented in the classroom:

THINK ALOUD

Great for reading comprehension and problem solving. Think-alouds help students to consciously monitor and reflect upon what they are learning. This strategy works well when teachers read a story or problem out loud and periodically stop to verbalize their thoughts. This allows students to follow the teacher's thinking process, which gives them the foundation they need for creating their own strategies and processes that can be useful for understanding what they are trying to comprehend.

CHECKLIST, RUBRICS AND ORGANIZERS

Great for solving word problems. These organizational tools support students in the decision-making process because they serve as an aid for planning and self-evaluation. Typically they ask what students know and need to know to arrive at an answer, and emphasize the need to reread the problem and self-check responses.

EXPLICIT TEACHER MODELING

Great for math instruction. Explicit teacher modeling helps students understand what is expected of them through a clear example/model of a skill or concept. When a teacher provides a easy to follow procedure for solving a problem, students have a memorable strategy to use for approaching a problem on their own.

READING COMPREHENSION

Truly comprehending reading involves students actively engaging with a text and accurately deciphering the layers of meaning. It is very important for students to develop solid reading comprehension skills because statistics show that people who have low reading comprehension ability suffer in academic, professional, and personal pursuits. The resources in this guide from supersummary.com are effective strategies for promoting reading comprehension.

METACOGNITION AND LEARNING

Metacognition denotes in-depth thinking in which cognitive processes involved in learning are actively controlled. This includes planning how to accomplish a given learning task, monitoring understanding, and estimating progress toward the completion of a task. It is believed that students have greater ability to control goals, dispositions, and attention when they are more aware of their thinking processes as they learn.

This means that self-regulation is a result of self-awareness. For instance, when a student is aware of his lack of commitment to write his thesis, and bears the knowledge that he is procrastinating, delaying, and allowing himself to be distracted by other less important things, then he could take action to get started on doing the task. This is possible only if the student becomes aware of his procrastination and takes control in planning on how to approach his thesis completion.

COMPONENTS OF METACOGNITION

Metacognition is divided into three components:

- **Metacognitive knowledge:** Metacognitive knowledge refers to the awareness individuals possess about themselves and other people as cognitive processors.
- **Metacognitive regulation:** Metacognitive regulation, on the other hand, has to do with people's control over cognition and learning experiences through a set of methods that help people regulate their learning.
- **Metacognitive experiences:** Metacognitive experiences involve cognitive efforts that are currently taking place.

TYPES OF METACOGNITIVE KNOWLEDGE

The metacognitive knowledge component of metacognition is divided into three different types of knowledge:

- **Declarative knowledge:** Declarative knowledge refers to the factual information that we know, and can both be spoken or written. This is also the knowledge about ourselves as learners and about what factors can influence our performances.
- **Procedural knowledge:** Procedural knowledge refers to information on how to do something or how to perform the procedural steps that make up a task. A high degree of procedural knowledge allows us to perform tasks more automatically through a variety of strategies.
- **Conditional knowledge:** Conditional knowledge refers to the knowledge about when to use a procedure, skill, or strategy or when not to. Such knowledge allows us to assign optimal resources for various tasks.

SKILLS IN METACOGNITIVE REGULATION

There are three important skills in metacognitive regulation:

- Planning
- Monitoring
- Evaluating

Planning involves suitable selection of strategies and the right assignment of resources. Monitoring

includes awareness of understanding and task performance, while evaluating refers to the assessment of the final result of a task and the efficiency carried out during task performance.

METACOGNITIVE STRATEGIES

Research has shown that teaching students metacognitive strategies can improve learning. Among the different learning strategies that are commonly used when studying or doing homework are rote memorization, goal setting, monitoring, self-assessing, and regulating during thinking and writing processes.

METACOGNITIVE EXPERIENCES AND PROBLEM SOLVING

Research revealed the two components of metacognition – metacognitive knowledge and metacognitive experiences – impact individuals' problem solving differently. Flavell (1979) described metacognitive experiences as “any conscious cognitive or affective experience that accompany or pertain to any intellectual enterprise” (p. 906).

He believed they were more likely to occur during a task due to the importance of individuals' decisions and actions in the endeavor. Efklides (2001) maintained that metacognitive experiences monitored task characteristics and also reflected an individual's goals in task-making. She identified different categories of metacognitive experiences, and some of these included: feeling of familiarity, feeling of confidence, feeling of difficulty, feeling of satisfaction, estimate of solution correctness, and estimate of effort expenditure.

She found individuals' metacognitive experiences were influenced by cognitive ability as well as “personality and other affective factors”. Moreover, the author joined Flavell (1979) in linking metacognitive experiences to triggering metacognitive knowledge. Efklides maintained that metacognitive experiences “monitor online cognitive processing” from the individual's perspective, and “online task-specific knowledge” as well as for influencing “control decisions”.

Her research revealed that metacognitive experiences varied according to the level of “task difficulty” and “phase of cognitive processing (advance, planning, and solution production)”. Akama and Yamauchi's (2004) study underscored the role of metacognitive experiences in problem solving. The authors examined the effect of task performance on individuals' metacognitive experiences.

Comparisons of participants' metacognitive experiences questionnaire results before and after the task illustrated differences between those who successfully solved the puzzle and those who did not. The success group “reported significantly higher feeling of satisfaction” confidence, knowledge, and correctness of the solution than the failure group. The authors found participants' prior performance affected “Feeling of difficulty, Need to think of the Success group and Feeling of having knowledge after the task for both groups.

The study also showed high correlations between individuals' task performance and metacognitive experiences after the task, which the authors attributed to participants' performance. The article maintained that this result supported earlier studies that illustrated "participants can get information from their performance and revise metacognitive experiences after problem-solving".

METACOGNITIVE REGULATION

Metacognitive Experiences involve the use of Metacognitive Strategies or Metacognitive Regulation (Brown, 1987). Metacognitive strategies are sequential processes that one uses to control cognitive activities, and to ensure that a cognitive goal (eg:- understanding a text) has been met. These processes help to regulate and oversee learning, and consist of planning and monitoring cognitive activities, as well as checking the outcomes of those activities.

Thus metacognitive regulation is the regulation of cognition and learning experiences through a set of activities that help people control their learning. For example, after reading a paragraph in a text, a learner may question herself about the concepts discussed in the paragraph. Her cognitive goal is to understand the text. Self questioning is a common Metacognitive Comprehension Monitoring Strategy.

If she finds that she cannot answer her own questions, or that she does not understand the material discussed, she must then determine what needs to be done to ensure that she meets the cognitive goal of understanding the text. She may decide to go back and reread the paragraph with the goal of being able to answer the questions she had generated if, after rereading through the text she can now answer the questions, she may determine that she understands the material.

Thus, the Metacognitive Strategy of self questioning is used to ensure that the cognitive goal of comprehension is met. Metacognitive experiences are those experiences that have something to do with the current, ongoing cognitive endeavour. Metacognitive experiences usually precede or follow a cognitive activity. They often occur when cognitions fail, such as the recognition that one did not understand what one just read.

Such an impasse is believed to activate metacognitive processes as the learner attempts to rectify the situation. Metacognition, or the ability to control one's cognitive processes (self regulation) has been linked to intelligence (Borokowski et al., 1987, Brown, 1987, Sternberg, 1984, 1986). Sternberg refers to these executive processes as "Metacomponents in his triarchic theory of control, other cognitive components as well as receive feed back from these components.

According to Sternberg, Metacomponents are responsible for "figuring out how to do a particular task or set of tasks, and then making sure that the task or set of tasks are done correctly" (Sternberg, 1986). These executive processes involve planning, evaluating, monitoring and problem solving activities. Sternberg maintains that the ability to appropriately allocate cognitive resources, such as deciding how and when a given task should be accomplished is central to intelligence.

INTELLIGENCE: SPEARMAN; THURSTONE; JENSEN; CATTELL; GARDNER; STENBERG; GOLEMAN; DAS, KAR & PARRILA

General intelligence, also known as g factor, refers to the existence of a broad mental capacity that influences performance on cognitive ability measures. Charles Spearman first described the existence of general intelligence in 1904. According to Spearman, this g factor was responsible for overall performance on mental ability tests.

Spearman noted that while people certainly could and often did excel in certain areas, people who did well in one area tended also to do well in other areas. For example, a person who does well on a verbal test would probably also do well on other tests. Those who hold this view believe that intelligence can be measured and expressed by a single number, such as an IQ score. The idea is that this underlying general intelligence influences performance on all cognitive tasks.

General intelligence can be compared to athleticism. A person might be a very skilled runner, but this does not necessarily mean that they will also be an excellent figure skater. However, because this person is athletic and fit, they will probably perform much better on other physical tasks than an individual who is less coordinated and more sedentary.

SPEARMAN AND GENERAL INTELLIGENCE

Charles Spearman was one of the researchers who helped develop a statistical technique known as factor analysis. Factor analysis allows researchers to use a number of different test items to measure common abilities. For example, researchers might find that people who score well on questions that measure vocabulary also perform better on questions related to reading comprehension.

Spearman believed that general intelligence represented an intelligence factor underlying specific mental abilities. All tasks on intelligence tests, whether they related to verbal or mathematical abilities, were influenced by this underlying g-factor.

Many modern intelligence tests, including the Stanford-Binet, measure some of the cognitive factors that are thought to make up general intelligence.

- **Visual-spatial processing:** Abilities such as putting together puzzles and copying complex shapes
- **Quantitative reasoning:** The capacity to solve problems that involve numbers
- **Knowledge:** A person's understanding of a wide range of topics
- **Fluid reasoning:** The ability to think flexibly and solve problems
- **Working memory:** The use of short-term memory (such as being able to repeat a list of items)

CHALLENGES TO THE CONCEPT OF GENERAL INTELLIGENCE

The notion that intelligence could be measured and summarized by a single number on an IQ test was controversial during Spearman's time and has remained so over the decades since. Some psychologists, including L.L. Thurstone, challenged the concept of a g-factor. Thurstone instead identified a number of what he referred to as "primary mental abilities."

More recently, psychologists such as Howard Gardner have argued against the notion that a single general intelligence can accurately capture all of human mental ability. Gardner instead proposed that multiple intelligences exist. Each intelligence represents abilities in a certain domain, such as visual-spatial intelligence, verbal-linguistic intelligence, and logical-mathematical intelligence. Research today points to an underlying mental ability that contributes to performance on many cognitive tasks.

IQ scores, which are designed to measure this general intelligence, are also thought to influence an individual's overall success in life. However, while IQ can play a role in academic and life success, other factors such as childhood experiences, educational experiences, socioeconomic status, motivation, maturity, and personality also play a critical role in determining overall success.

The early 1900s saw Charles Spearman using a mathematical approach to the question of measuring human intelligence. Using statistical factor analysis Spearman identified g, a single underlying intelligence factor he believed accounted for the variety of observable abilities. Spearman noticed that children's grades across all school subjects tended to be highly correlated.

If a child did well in one subject, they generally also did well in another subject, and vice versa. What did this say about the nature of intelligence? He devised factor analysis to measure the relationships between seemingly varied cognitive abilities and account for the correlations he saw between scores on different tests.

The result was Spearman's two-factor theory which attempted to show that all cognitive performance can be explained by two variables: one general ability (g) and the many specific abilities (s) it gave rise to. Later, however, further analysis showed that g alone was enough to explain the correlations between different tests. When people talk about IQ or intelligence, it's usually this general mental ability that they are referring to.

ALTERNATIVES AND CRITICISMS

The existence of a single quantifiable factor for human intelligence has been hotly debated ever since Spearman proposed it. Criticism came from one of Spearman's own students, Raymond Cattell, who thought that intelligence could be understood as two main capacities: "fluid" (Gf) and "crystallized" (Gc). Cattell thought that crystallized intelligence was a kind of cemented knowledge bank acquired over time, representing all those abilities that were already familiar from previous learning.

On the otherhand, fluid intelligence was the ability to acquire that knowledge in the first place, i.e. to learn in the moment. He saw g as more accurately Gc, and that tests focusing only on g would omit an important developmental factor in human intelligence. Others were similarly critical for the reductive nature of g, including psychologist L.L. Thurstone and J. P Guilford.

Both believed that there were several, irreducible and independent domains of intelligence, however many have since found correlations between their tests which strongly suggest a general factor. Still more criticism came from Howard Gardener who proposed nine domains of intelligence, including some decidedly non-cognitive ones like musical, existential and bodily-kinesthetic intelligence.

Almost everyone can think of a person who performed poorly at school but excelled in sport or dance, perhaps, or a person with musical genius that didn't translate to any other area in their life. Gardner argued that the academic environment over-emphasized verbal and logical skill while ignoring these other forms of intelligence. However, his critics have responded that we think of something like athletic skill as just that – a skill and not strictly intelligence.

THURSTONE'S THEORY

Primary mental abilities/Group factor theory: States that Intelligent Activities are not an expression of innumerable highly specific factors, as Thorndike claimed. Nor is it the expression primarily of a general factor that pervades all mental activities. It is the essence of intelligence, as Spearman held.

Instead, the analysis of interpretation of Spearman and others led them to the conclusion that 'certain' mental operations have in common a 'primary' factor that gives them psychological and functional unity and that differentiates them from other mental operations. These mental operations then constitute a group.

A second group of mental operation has its own unifying primary factor, and so on. In other words, there are a number of groups of mental abilities, each of which has its own primary factor, giving the group a functional unity and cohesiveness. Each of these primary factors is said to be relatively independent of the others.

Thurstone has given the following six primary factors:

- (i) The Number Factor
(N)—Ability to do Numerical Calculations rapidly and accurately.
- (ii) The Verbal Factor
(V)—Found in tests involving Verbal Comprehension.
- (iii) The Space Factor
(S)—Involved in any task in which the subject manipulates the imaginary object in space.
- (iv) Memory
(M)—Involving ability to memorize quickly.
- (v) The Word Fluency Factor

(W)—Involved whenever the subject is asked to think of isolated words at a rapid rate.

(vi) The Reasoning Factor

(R)—Found in tasks that require a subject to discover a rule or principle involved in a series or groups of letters. Based on these factors Thurstone constructed a new test of intelligence known as “Test of Primary Mental Abilities (PMA).”

JENSEN'S THEORY OF INTELLIGENCE

The criticism of my "theory of intelligence" by Humphreys and Dachler (1969), although making an interesting and worthwhile methodological point, is based on so limited a view of the theory and of the supporting evidence as to constitute a very weak criticism when viewed in proper perspective.

The questionable suitability of the Project TALENT tests used by Humphreys and Dachler for testing hypotheses derived from the theory, as compared with tests and studies specifically designed for this purpose, hardly warrants these authors' overly sweeping conclusion that "... Jensen's published results can be disregarded and that unbiased data lend no support to his theory [p. 426]."

Theoretical Misconceptions The theory, which has been explicated in detail elsewhere (Jensen, 1968a, 1969, in press), concerns the organization of mental abilities in individuals. It incidentally predicts, and was originally formulated to explain, relationships between intelligence, rote-learning ability, and socioeconomic status (SES).

It postulates two broad types of mental ability: Level I (associative and rote learning ability as measured, for example, by digit-span memory and rote serial learning), and Level II (abstract reasoning as measured by most IQ tests and in purer form by tests such as Raven's Progressive Matrices).

The correlation between Level I and Level II abilities, according to the theory, is due largely to the hierarchical functional dependence of Level II upon Level I. Requests for reprints should be sent to: Arthur R. Jensen, School of Education, University of California, Berkeley, California 94720. *esses upon* Level I.

The educational and occupational requirements of our society tend to sort out people much more by their Level II ability than by their Level I ability, so that lower and upper SES groups will differ markedly on Level II tests while differing little or not at all on Level I. Humphreys and Dachler are wrong to argue that a general theory of intelligence means that it must generalize to the entire population. The theory is about the organization of mental abilities.

It makes no statements about population parameters per se. Given such parameters, however, the theory should yield specific predictions. But populations differ in their social class composition and relative frequencies in various SES categories, and a truly general theory of intelligence cannot

include these specific population characteristics (though it needs to know them for specific predictions) any more than a general theory of gravitation includes such data as the mass of the earth or air resistance, which nevertheless need to be taken into account in order to make a specific prediction from the law of falling bodies.

Humphreys and Dachler have thus failed to distinguish clearly between the theory itself and the ancillary information required to derive any specific test of the theory. Furthermore, it is not at all clear just what alternative theory or empirical state of affairs prevails according to Humphreys and Dachler. Is it that all kinds of mental abilities are about equally correlated with SES? This is clearly refuted by much solid evidence.

CATTELL THEORY OF INTELLIGENCE

The fluid aspect of this theory says that intelligence is a basic capacity due to genetic potentiality. While this is affected by the past and new experiences, the crystallized theory is a capacity resultant of experiences, learning and environment.

In the 1930s and early 1940s, both Raymond B. Cattell and Donald O. Hebb were critical of the ability of the currently available tests to accurately measure intelligence and both began to develop improved tests of intelligence. Cattell was in search of a "culture-free" test of intelligence while Hebb was concerned with the development of tests of intelligence which could measure the effects of localized brain damage at different ages in patients with little schooling.

At that time, intelligence testing was fuelled by a scientific interest to quantify the intelligence of different groups of people, with a focus on special classes of individuals, such as the insane, feeble-minded, deaf, and delinquent. The intelligence scales used were influenced by the work of Alfred Binet and Theodore Simon with the publication of the first Binet-Simon scale in 1905 (Binet and Simon, 1905). This "measuring scale of intelligence" was originally developed for use with school children in Paris and consisted of a series of 30 brief cognitive tests.

The Binet-Simon intelligence scale and its modifications (such as the Stanford-Binet scale) were the most commonly used tests of intelligence in the 1930's (Pintner, 1931), but the Wechsler-Bellevue intelligence scale, published in 1939 (Wechsler, 1939) introduced a number of innovations in intelligence testing including a test more suitable for measuring intelligence in adults rather than children; the inclusion of both verbal and performance measures of intelligence; and the omission of memory tests (Boake, 2002).

CATTELL'S WORK ON INTELLIGENCE TESTING

Cattell (1940a) gave a detailed critique of the Binet test and was concerned that differences in scores on intelligence tests were due to differences in social status, special abilities distinct from intelligence, or other environmental factors. The problem that he identified was that tests of intelligence focused on acquired skills and verbal ability rather than on intelligence per se.

Cattell was interested in developing “culture free” intelligence tests based on non-verbal skills that would define a person's general intelligence “g” (Spearman, 1904) irrespective of their social status, race, verbal ability or environmental experience. Cattell thus developed a culture-free test with seven sub-tests. The tests were designed to be non-verbal and instructions were given using a series of worked examples rather than verbal instructions.

Cattell et al. (1941) outlined seven variables which influenced intelligence or “general ability” and then analyzed the effects of environmental variables such as cultural knowledge and training (practice) on each test. He then compared the scores of American-born and immigrant children on his culture-free test and three other tests of intelligence: the Terman-Merrill Revision of the Binet Test, the arithmetic section of the American Council of Education (A.C.E.) Test, and the Arthur Performance Test.

Based on these studies, Cattell et al. (1941) found that the Arthur test was the most culture-free, the culture-free test was second, the Terman-Merrill-Binet test was third and the A.C.E. test fourth, and concluded that culture-free tests should be administered using people from a wide range of cultures, “primitive and otherwise.”

Gardner Theory of intelligence

GARDNER'S THEORY OF MULTIPLE INTELLIGENCE

Howard Gardner in his book “Frames of Mind, The Theory of Multiple Intelligence” (1983), puts forth a new and different view of human intellectual competencies. He argues boldly and cogently that we are all born with potential to develop a multiplicity of Intelligence, most of which have been overlooked in our testing society, and all of which can be drawn upon to make us competent individuals.

The potential for musical accomplishments, bodily mastery and spatial reasoning, and the capacities to understand ourselves as well as others are, Gardner argues, “the multiple forms of intelligence that we must add to the conventional—and typical tested—logical and linguistic skills long called I.Q.”.

The multiple intelligence theory is that people possess eight types of intelligence : linguistic, logical, spatial, musical, motor ability, interpersonal, intrapersonal and naturalistic intelligence. Sternberg's triarchic theory: Psychologist Robert Sternberg (1985) has constructed a three-pronged, or triarchic theory of intelligence.

The **Three types** are :

Analytical Intelligence—is what we generally think of as academic ability. It enables us to solve problems and to acquire new knowledge. Problem-solving skills include encoding information, combining and comparing pieces of information and generating a solution.

Creative Intelligence—is defined by the abilities to cope with novel situations and to profit from experience. The ability to quickly relate novel situations to familiar situations (that is, to perceive similarities and differences) fosters adaptation. Moreover, as a result of experience, we also become able to solve problems more rapidly.

Practical Intelligence—or “street smarts”, enable people to adapt to the demands of their environment. For example, keeping a job by adapting one’s behavior to the employer’s requirements is adaptive. But if the employer is making unreasonable demands, reshaping the environment (by changing the employer’s attitudes) or selecting an alternate environment (by finding a more suitable job) is also adaptive.

STENBERG THEORY OF INTELLIGENCE

The triarchic theory of intelligence consists of **three** subtheories:

- (i) the componential subtheory which outlines the structures and mechanisms that underlie intelligent behavior categorized as metacognitive, performance, or knowledge acquisition components ,
- (ii) the experiential subtheory that proposes intelligent behavior be interpreted along a continuum of experience from novel to highly familiar tasks/situations,
- (iii) the contextual subtheory which specifies that intelligent behavior is defined by the sociocultural context in which it takes place and involves adaptation to the environment, selection of better environments, and shaping of the present environment.

According to Sternberg, a complete explanation of intelligence entails the interaction of these three subtheories. The componential subtheory specifies the potential set of mental processes that underlies behavior (i.e., how the behavior is generated) while the contextual subtheory relates intelligence to the external world in terms of what behaviors are intelligent and where.

The experiential subtheory addresses the relationship between the behavior in a given task/situation and the amount of experience of the individual in that task/situation. The componential subtheory is the most developed aspect of the triarchic theory and is based upon Sternberg (1977) which presents an information processing perspective for abilities.

One of the most fundamental components according to Sternberg’s research are the metacognition or “executive” processes that control the strategies and tactics used in intelligent behavior.

APPLICATION

The triarchic theory is a general theory of human intelligence. Much of Sternberg’s early research focused on analogies and syllogistic reasoning. Sternberg has used the theory to explain exceptional intelligence (gifted and retardation) in children and also to critique existing intelligence tests. Sternberg (1983) outlines the implications of the theory for skill training. Later work

examines topics such as learning styles (Sternberg, 1997) and creativity (Sternberg, 1999).

EXAMPLE

Sternberg (1985) describes the results of various analogy experiments that support the triarchic theory. For example, in a study that involved adults and children solving simple analogies, he found that the youngest children solved the problems differently and theorized that this was because they had not yet developed the ability to discern higher order relations.

In another study of analogies with children at a Jewish school, he discovered a systematic bias towards selection of the first two answers on the right and suggested that this could be accounted for by the right-to-left reading pattern of Hebrew.

PRINCIPLES

1. Training of intellectual performance must be socioculturally relevant to the individual.
2. A training program should provide links between the training and real-world behavior.
3. A training program should provide explicit instruction in strategies for coping with novel tasks/situations.
4. A training program should provide explicit instruction in both executive and non-executive information processing and interactions between the two.
5. Training programs should actively encourage individuals to manifest their differences in strategies and styles.

ORIGINS

Sternberg proposed his theory in 1985 as an alternative to the idea of the general intelligence factor. The general intelligence factor, also known as *g*, is what intelligence tests typically measure. It refers only to "academic intelligence."

Sternberg argued that practical intelligence—a person's ability to react and adapt to the world around them—as well as creativity are equally important when measuring an individual's overall intelligence. He also argued that intelligence isn't fixed, but rather comprises a set of abilities that can be developed. Sternberg's assertions led to the creation of his theory.

Subtheories

Sternberg broke his theory down into the following **three** subtheories:

Contextual subtheory: The contextual subtheory says that intelligence is intertwined with the individual's environment. Thus, intelligence is based on the way one functions in their everyday circumstances, including one's ability to a) adapt to one's environment, b) select the best environment for oneself, or c) shape the environment to better fit one's needs and desires.

Experiential subtheory: The experiential subtheory proposes that there is a continuum of experience from novel to automation to which intelligence can be applied. It's at the extremes of

this continuum that intelligence is best demonstrated. At the novel end of the spectrum, an individual is confronted with an unfamiliar task or situation and must come up with a way to deal with it. At the automation end of the spectrum, one has become familiar with a given task or situation and can now handle it with minimal thought.

Componential subtheory: The componential theory outlines the various mechanisms that result in intelligence.

According to Sternberg, this subtheory is comprised of **three kinds** of mental processes or components:

- **Metacomponents** enable us to monitor, control, and evaluate our mental processing, so that we can make decisions, solve problems, and create plans.
- **Performance components** are what enable us to take action on the plans and decisions arrived at by the metacomponents.
- **Knowledge-acquisition components** enable us to learn new information that will help us carry out our plans.

Kinds of Intelligence

Each subtheory reflects a particular kind of intelligence or ability:

- **Practical intelligence:** Sternberg called one's ability to successfully interact with the everyday world practical intelligence. Practical intelligence is related to the contextual subtheory. Practically intelligent people are especially adept at behaving in successful ways in their external environment.
- **Creative intelligence:** The experiential subtheory is related to creative intelligence, which is one's ability to use existing knowledge to create new ways to handle new problems or cope in new situations.
- **Analytical intelligence:** The componential subtheory is related to analytical intelligence, which is essentially academic intelligence. Analytical intelligence is used to solve problems and is the kind of intelligence that is measured by a standard IQ test. Sternberg observed that all three kinds of intelligence are necessary for successful intelligence, which refers to the ability to be successful in life based on one's abilities, personal desires, and environment.

DANIEL GOLEMAN'S EMOTIONAL INTELLIGENCE THEORY

With regard to emotional intelligence, Daniel Goldman was not the first to articulate the concept. However, in the double role of psychologist and journalist, Goleman made the elements of emotional intelligence accessible to broad segments of society.

His best-selling books – beginning with “Emotional Intelligence” (1995) – have already changed how some businesses interact with clients and some managers recruit employees. His impact has been even more profound on education. Thanks to Goleman, educators now recognize that emotional intelligence is every bit as important to learning as intellectual prowess or IQ.

As a result, tens of thousands of schools throughout the world currently incorporate “social and emotional learning” in their curricula. In some schools, courses geared toward developing emotional intelligence are mandatory.

GOLEMAN’S FIVE COMPONENTS OF EMOTIONAL INTELLIGENCE

Goleman broadened Mayer’s and Salovey’s four-branch system to incorporate five essential elements of emotional intelligence – or EQ, the shorthand he sometimes uses:

- **Emotional self-awareness** – knowing what one is feeling at any given time and understanding the impact those moods have on others
- **Self-regulation** – controlling or redirecting one’s emotions; anticipating consequences before acting on impulse
- **Motivation** – utilizing emotional factors to achieve goals, enjoy the learning process and persevere in the face of obstacles
- **Empathy** – sensing the emotions of others
- **Social skills** – managing relationships, inspiring others and inducing desired responses from them

APPLICATIONS FOR EDUCATORS

There are very practical reasons to promote social and emotional learning in schools, from kindergarten through college. According to Goleman, bullying, disciplinary problems, violence and drug abuse are reduced in schools with a high EQ. With a solid basis in emotional intelligence, academic performance – as well as behavior – improves.

There is an obvious connection to Goleman’s third, motivational component: learning stimulates curiosity and promotes feelings of satisfaction, even joy, when students immerse themselves in the process of assimilating new information. The EQ of children starts developing long before they ever enter a classroom. But EQ levels will vary widely, depending on each child’s home environment.

Thus teachers must be able to recognize those children whose emotional literacy needs a boost. Teachers should be ready to talk about feelings in the classroom. The message is that no emotion is “wrong,” but certain ways of expressing those emotions or acting on them are indeed inappropriate.

In 2002, UNESCO launched an international campaign to promote emotional learning in the classroom. The U.N. body sent a statement of 10 basic EQ principles to education ministries throughout the world. Those principles drew heavily from Goleman’s exposition of emotional intelligence.

RATING EMOTIONAL INTELLIGENCE

PositivePsychology.com has created a guide to help people assess their own levels of emotional

intelligence. Discover exercises ranging from classifying facial expressions, emotional articulation tools, and communication tasks among other activities. These are suitable for students and adults alike.

DAS, KAR & PARRILA THEORY

PASS Cognitive Processes Das and his colleagues (Das et al., 1975; Das, Parrila, & Kirby, 1994) have offered the Planning, Attention, Simultaneous and Successive processing (PASS) theory as an alternative to the conceptualization of intelligence as a general mental ability. The popular approach to theory of human intelligence that considers human intellectual functioning as a single unitary quality underlying all cognitive processes (g) provides ideology for PASS theory of Intelligence.

It challenges g-theory on the grounds that neuropsychological research has consistently demonstrated that the brain is made up of interdependent, but separate functional systems. Specifically, the PASS theory is based on the view that intelligence is composed of multiple interdependent cognitive processes.

The PASS theory has evolved through many years of theoretical and empirical work. Initially proposed and described as an information processing model derived from Luria (Das, 1973; Das, Kirby, & Jarman, 1975) and then as information-integration model (Das, Kirby, & Jarman, 1979), later the model was called the PASS model (Naglieri & Das, 1988, 1990). Further it was elaborated by Das, Naglieri and Kirby (1994); and Das, Kar and Parrila (1996) and referred to as PASS theory of intelligence.

Das et al. (1994) believed that it has a strong theoretical foundation, has been sufficiently operationalized and is making significant contributions to the understanding of exceptionality and predict academic as well as job performance. This view of intelligence is based on a neuropsychological work of Luria (1966, 1973) as well as cognitive psychological findings (Hunt & Lansman, 1986).

According to Luria, human cognitive processing involves three functional systems that work in concert and whose participation is necessary for any type of mental activity (1973, p.43). The first functional unit is responsible for regulating cortical tone and maintenance of attention. The second unit receives, processes and stores information using simultaneous and successive information coding and the third unit programs, regulates and directs mental activity.

The first functional unit is associated with the brainstem, diencephalon and medial regions of the hemispheres. This is the base of human mental processes, because it maintains a proper state of arousal which allows for the focus of attention. The arousal aspect of the first functional unit is important because it provides the opportunity for the voluntary action of attention.

Arousal is responsible for cortical tone and wakefulness and also attention which is more of a complex cognitive activity. Given an appropriate state of arousal, the two broad classes of selective and divided attention (Kahneman & Treisman, 1984) may occur. Any task involving the intentional discrimination between stimuli requires selective attention, which is important activity of the first functional unit.

The second unit's functions are regulated by the occipital, parietal and temporal lobes posterior to the central sulcus. The cognitive functions of this unit are receiving, processing and retaining information which a person obtains from the external world. Luria (1966) stated that there is a strong evidence for distinguishing the two basic forms of integrative activity of the cerebral cortex, by which different aspects of the outside world may be reflected.

These two types of processes are simultaneous processes which integration of stimuli into synchronous and primarily spatial groups and successive process which consists of integration of stimuli into temporally organized serial order. The third functional unit described by Luria (1973) allows the individual to form plans of action, carry them out and verify the effectiveness of the plans. It relies on the second functional unit for processing components and the first functional unit for proper attentional status.

With the prerequisite functioning of these units, the individual can develop plans of action, inspect performance and regulate behaviour so that it conforms to the plans and then compare the effects of these actions with the original intention so that correction of mistakes is possible. The third functional unit is also responsible for activities such as impulse control, regulation of voluntary actions and linguistic functions such as spontaneous speech (Luria, 1980, p. 517).

Das (1984) and Arlin (1977) suggested that planning is the essence of human intelligence, as it involves the aptitude for asking new questions, solving problems and self-monitoring as well as the application of information coding processes.

PLANNING

This is the ability to make decisions about how to solve problems and perform actions. It involves setting goals, anticipating consequences and using feedback. Planning also involves the attentionarousal, simultaneous and successive processing functions and is associated with the frontal lobes of the brain. Planning processes provide the individual with the facility to determine and utilize an efficient way to solve a problem through the application of attention, simultaneous and successive processes in conjunction with the base of knowledge.

The three main aspects of planning are generation, selection, and execution. If more than one plan is found, selecting the best one is important and monitoring the effectiveness of these solutions is always needed.

ATTENTION-AROUSAL

This involves the ability to selectively attend to stimuli while ignoring other distractions. Individuals

with Attention Deficit Disorder(ADD) have impairments in this area. The arousal functions are generally associated with the brain stem and thalamus, whereas the higher attentional processes are thought to be related to the planning functions of the frontal lobe.

SIMULTANEOUS PROCESSING

This involves the ability to integrate separate stimuli into a cohesive, interrelated whole. Simultaneous processing is necessary for language comprehension, as in: "Who is the person in the following statement: My mother's father was his only son (Naglieri & Das, 1997)?" The occipital and parietal lobes are thought to be important for these functions.

It also involves the integration of stimuli into groups or the recognition that a number of stimuli share a common characteristic. Both of these aspects require that all the stimuli be related to one another. Simultaneous processing may take place with perceived stimuli, remembered stimuli or the conceptual aspects of stimuli (Naglieri, 1985).

SUCCESSIVE PROCESSING

This involves the ability to integrate stimuli into a sequential order. An example of this process is the sequencing of letters and words in reading and writing. This type of processing is believed to be related to frontal-temporal lobe functioning (Das, 2002). The critical part of successive processing is that elements must be ordered without surveyability.

In successive processing elements are only linearly related. Successive coding is needed for skilled movements because such activity requires a series of movements which follow each other in a strictly defined order without surveyability (Luria 1966, p. 78). In the early stages of the skilled movement each successive link exists as a separate unit and may be taught as a specific step in a larger behaviour.

Only when each aspect becomes automatic can the initial stimulus in the chain become the signal that leads to the automatic execution of the complete successive action. Because the PASS processes are interactive, they act in concert to provide specific functions to virtually all tasks performed in everydaylife.

However, all the processes are not equally involved in all the tasks. A close relationship has been described by Luria (1980), and Stuss, Benson et al. (1986) between planning and attention. It results from large number of neural connections between the first and third functional units in the brain. Planning requires an adequate state of arousal so that attention can be focused.

An appropriate level of activation, attention and arousal is needed so that a plan of action can be generated and utilized. A similar strong correlation between coding and planning exists. Real life tasks can be coded in different ways. How one manages the information is a planning function that influences the coding approach used (Lawson & Kirby, 1981; Kirby & Das 1978; Kirby & Lawson,

1983).

Planning processes are believed to be distinct from simultaneous, successive and attentional processes because they provide the individual the means to analyse cognitive activity, develop some method to solve a problem, evaluate the effectiveness of a solution, and modify the approach used as needed. These processes are necessary when an efficient and systematic approach to solving a problem is required.

The output component of the PASS processes is a complex function by itself. Simultaneous processes may predominate in the solution of a task, but motor programming may be required if the response is written one. An individual may have competence in processing, but fail to come up with the motor program required to respond. This can be a problem in special groups such as brain damaged and mentally handicapped individuals.

Research by Das (e.g., Das 1972; Das, Kirby, & Jarman, 1975; 1979) has clearly shown that the simultaneous and successive information coding component of the PASS processes has construct validity. These researchers and others have found simultaneous and successive factors and evidence of developmental differences by chronological and mental age using tests such as progressive matrices, memory for designs and figure copying (simultaneous), and digit span forward, sound blending and sentence repetition (successive).

The studies have involved samples of elementary and middle school-aged students (Das, 1972, 1973; Das & Molloy, 1975; Garofalo, 1986; Jarman & Das, 1977; Kirby & Das, 1978; Kirby & Robinson, 1987; Naglieri & Das, 1988), high-school aged samples (Naglieri & Das, 1988), and adults (Das & Heemsbergen, 1983; McCallum, & Merritt, 1983; Merritt & McCallum, 1983; Wachs & Harris, 1986; Ashman, 1982).

PASS and other Cognitive Theories of Intelligence Contemporary theories about intelligence can be divided into two classes, psychometric and cognitive. Some of the main followers of the alternative approach of cognitive intelligence have been Jensen (1970, 1980) and Das et al. (1975, 1977). Jensen (1968, 1970) postulated the notion of two-level theory of mental abilities to account for the differences in cognitive test performance of certain racial and social class groups.

Level I ability is described as an associative ability in which the correspondence between stimulus information response output is relatively simple and direct. In contrast, Level II ability is described as conceptual ability in which the original stimulus information for learning is transformed and elaborated before the response can be made.

Level I and Level II can be taken as two poles of continuum along which tasks can be arranged in terms of degree of complexity of cognitive demands. Das's PASS model observed that a number of inconsistencies in Level I/II data could be interpreted with knowledge of types of transformation (e.g., simultaneous and successive) rather than amount of information transformation (Level I and II).

Jarman (1978) took some issues and stated that the evidence indicating that memory tasks are performed using various strategies raised question regarding validity of labeling Level I position to different memory tasks. What is Creativity: Torrance, Getzels & Jackson, Guilford, Wallach & Kogan Relationship between Intelligence and Creativity?

CREATIVITY: TORRANCE, GETZELS & JACKSON, GUILFORD, WALLACH & KOGAN RELATIONSHIP BETWEEN INTELLIGENCE AND CREATIVITY

Creativity theory by Torrance

The **TTCT (Torrance Tests of Creative Thinking)** assess how creatively a child's mind works and are often given to children in order to determine advanced placement or as part of an entrance examination. They are very different from the intelligence and reasoning tests your child may already have taken. Instead of traditionally taught subjects such as reading or math, these tests assess creativity.

Children are scored on a number of aspects, including creative titles for pictures, expressions, imagery and humor. Therefore, your child hasn't "learned" the content that will be tested on the Torrance, since it involves more ambiguous concepts than the ones that are driven home in the classroom. As the name suggests, the Torrance Tests of Creative Thinking test, in large part, how creative and imaginative your child is.

The Torrance Tests of Creative Thinking (TTCT) is designed to identify and evaluate creative potential using two parts – a Verbal test and a Figural test.

- The **Verbal test** contains seven subtests – Asking, Guessing Causes, Guessing Consequences, Product Improvement, Unusual Uses, Unusual Questions, and Just Suppose. Subtests are scored on the basis of fluency, flexibility, and originality (with a score on elaboration as optional), and these scores are accumulated across all subtests. The totals may be converted to standard T scores if normative reference is desired.
- The **Figural test** has three subsets – Picture Construction (from a marked cue), Picture Completion (again with cues), and Parallel Lines. The first of these subtests is scored on originality and elaboration while the remainder are scored on fluency, flexibility, originality, and elaboration. Totals are then accumulated across subtests to provide overall scores for Figural fluency, flexibility, originality, and elaboration. These scores, as in the Verbal test, can be converted to a standard T score.

MORE INFORMATION ON THE TORRANCE TEST

The tests are game-like to catch children's interests. The scoring of the tests is by hand and require careful attention to the manual for reliable results. However, "streamlined" guides are available and are helpful in developing greater familiarity with the test and its scoring procedures.

Grades K through graduate school. Many school districts include some kind of creativity testing as part of their assessment of gifted children. One of the most common tests used to assess creativity in a child or an adult is the Torrance Tests of Creative Thinking.

The TTCT test is a series of figural exercises (thinking with pictures) and verbal activities (thinking with words) that students do to showcase their creative abilities. The full test is a series of individual exercises that are administered by a psychologist over a 90-minute period. While it isn't the perfect creativity test, it has proved to be highly reliable over the years as a predictor of successful, creative individuals of all ages.

This test is used by both businesses and schools. Often, in a school setting, a few of the exercises from the TTCT test are chosen to be administered along with other intelligence or achievement tests. They might choose one figural and one verbal activity to include in their evaluation if they are looking for children who are both highly creative and intelligent to be part of their program.

GETZELS AND JACKSON THEORY OF CREATIVITY

The study which had a great impact on psychologists in the field of education and which had set off a boom in research into the area of creativity was the study of 449 high school children in Chicago, published by J. W. Getzels and P. W. Jackson in 1962. They compared a group of middle-class adolescent pupils who had scored well on intelligence tests with pupils who scored well on creativity tests designed by Guilford.

They found that highly creative children were superior in scholastic achievement to pupils with high I.Q., although the high creatives had 20 I.Q. points lower than the high I.Q. students - indicating a positive relationship between creativity and academic ability. The high creatives, although having an average I.Q. 5 points less than their school population taken as a whole performed better in school achievement.

Getzels and Jackson's (1962) study drew criticisms as to its design and the sampling procedures employed. But the educational implications of Getzels and Jackson's study were undeniable. Several research studies replicated the study on other samples. Torrance (1962), for example, undertook eight replications of this famous study. Five of these studies were on elementary school students, one at high-school level and two at graduate level.

It was found that six of these studies supported the findings of Getzels and Jackson that creativity is related to academic achievement. The two discrepant studies showed that creativity may be dependent on other factors such as the range of intelligence of the sample studied and the type of school the students attended. Yamamoto (1964a) replicated Getzels and Jackson's (1962) study on 272 ninth through twelfth grade students of the University of Minnesota High School. The students in each grade were grouped into three groups based on their level of creativity and

intelligence scores.

The groups were the high intelligence group (comprising students in the upper 20% on IQ but not in the upper 20% on creativity scores), the high creative group (comprising students in the upper 20% on creativity scores but not in the upper 20% on IQ) and the high intelligent-high creative group which comprised students in the upper 20% on both the I.Q. and creativity measures.

On analyzing the academic achievement scores of these groups, Yamamoto (1964a) found no difference in academic achievement between the high creatives and the high I.Q. groups although there was a mean difference of twenty I.Q. points. The creatives seem to be able to “compensate” for what they lack in intelligence by their creative ability to attain similar level of academic achievement. Other researchers like Ahrens (1962), Jacobson (1966), Lucht (1963), Feldhusen, Treffinger and Elias (1970) have come out in support of the Getzels and Jackson phenomenon.

Researchers who used the Grade Point Average as a measure of academic achievement, namely, Taylor (1958), Nuss (1961), Parker (1979), Wilson (1968) and Cline, Richards and Needham (1963) have also reported results consistent with the findings of Getzels and Jackson. However, there are studies that did not support the Getzels and Jackson phenomenon of equivalent achievement of the high creative and the high I.Q. groups. Among the earliest were the discrepant studies reported by Torrance (1962) based on his replications of the Getzels and Jackson's study.

Many reasons were put forward to explain this. Among them were the lower level of intelligence among the subjects studied, the different kinds of academic ability measured and to the presence of an I.Q. threshold in the relationship between creativity and academic achievement. This study intends to further investigate this phenomenon using Form Four (US Grade 10) Malaysian students to explore if this phenomena is prevalent in other cultures.

Procedure Subjects totaling 467 Form Four students were drawn from three secondary schools in the township of Kuantan, in the state of Pahang in Malaysia. Their average age was 13.3 years and the students had undergone six years of primary and three years of secondary school.

DISCUSSION

The equivalent academic achievement scores obtained by the HI-LC and LI-HC groups support the findings reported by Getzels and Jackson (1962), Torrance (1959) and Yamamoto (1964a). The fact that similar findings are obtained in another culture with a different education system after a lapse of about 40 years adds to the generalizability of this phenomenon of positive correlation between creativity and academic achievement across culture and time.

The similarity in achievement scores among the HI-HC and LI-HC groups further supports the contribution of creativity to academic achievement. The fact that students not in the top 20% in IQ are able to achieve just as well as students in the top 20% in IQ possibly due to their elevated

creativity, may be considered a significant finding in this research.

This finding also provides empirical evidence and support for the advocacy of creativity enhancing curricula and programs in Malaysia. At very high IQ levels, the strength of the relationship between creativity and academic achievement appears to diminish. This finding appears to support the threshold concept in this relationship. It appears that above an intelligence threshold of about 140, creativity may not enhance academic achievement.

However, this finding appears to contradict Yamamoto's (1964b) study which found that above the IQ level of 120, creativity would enhance academic achievement. It may be concluded that while the intelligence threshold concept appears to hold true, the nature of the relationship between creativity and academic achievement both above and below the threshold appears to differ in this Malaysian sample. Further research involving different samples and different measures of creativity, intelligence and academic achievement will throw more light on these relationships and the concept of intelligence threshold.

CONCLUSION

This paper provides empirical support for the positive relationship between creativity and academic achievement and the finding that this relationship appears to differ across the intelligence continuum. This relationship appears to be positive until an intelligence threshold of around 140 above which it appears to diminish.

Further studies need to be carried out to confirm the nature of this relationship for other measures academic achievement and across other cultures to establish the generalizability of this finding.

THEORIES OF CREATIVITY ON THE BASIS OF GUILFORD

Before I am able to explain several of the leading theories of creativity, one must understand a confusing intricacy surrounding this topic of study. What is different about the study of creativity is that in other fields of research the newest theory often replaces the older theories. The newest theory is often deemed as being "more correct" than the previously held school of thought.

However when researching creativity, one might find that there are a multitude of theories that are seen as "correct". The theories themselves each argue that creativity is caused by different factors. They each argue that the components of creativity are different. Interestingly enough, they each are correct in their own respect.

Now this may seem a tad confusing, but because creativity is a such a dynamic concept many theories are only able to define creativity in one particular field or career at one specific point in time (i.e. creativity among engineers, creativity among artists, etc.) That being said, it is important to view each model of creativity only as a single perspective among many perspectives.

GUILFORD'S STRUCTURE OF INTELLECT MODEL AND MODEL OF CREATIVITY

One of the earliest models of creativity was created by a man named J. P. Guilford. Originally, Guilford was trying to create a model for intellect as a whole, but in doing so also created a model for creativity. Guilford hypothesized that every mental task was made up of three separate parts: an operation, a content, and a product.

He stated that there were five types of operations, four types of content, and six types of products adding to a total of one hundred and twenty different types of possible mental tasks (he would later expand this number to one hundred and eighty different mental tasks, but for now let's focus on the original one hundred and twenty.) Of these one hundred and twenty different mental tasks Guilford identified one specific operation as "divergent production" and marked it as being a vital component of creativity. This divergent production coupled with a content and a product created twenty four possibilities that Guilford labeled collectively as "divergent thinking".

By labeling this group of mental tasks as divergent thinking Guilford made an important assumption for creative research: creativity isn't one abstract concept. The idea that creativity is a category rather than one single concept opened up the ability for other researchers to look at creativity with a whole new perspective.

Additionally, Guilford hypothesized one of the first models for the components of creativity. He explained that creativity was a result of having:

1) Sensitivity to problems, or the ability to recognize problems.

2) Fluency, which encompasses

- a) Ideational fluency, or the ability rapidly to produce a variety of ideas that fulfill stated requirements.
- b) Associational fluency, or the ability to generate a list of words, each of which is associated with a given word.
- c) Expressional fluency, or the ability to organize words into larger units, such as phrases, sentences, and paragraphs.

3) Flexibility, which encompasses

- a) Spontaneous flexibility, or the ability to demonstrate flexibility.
- b) Adaptive flexibility, or the ability to produce responses that are novel and high in quality.

This represents the base model by which several researchers would take and alter to produce their new theories of creativity years later. This base theory stated that creativity was a result of cognitive ability (intellect) alone. As Guilford was originally only studying intellect, it is not strange that he categorizes creativity as just a specific subset of cognitive ability.

After Guilford's initial model, researchers would begin to categorize and re-categorize mental ability into subsets that would further hypothesize how mental ability was broken up (as shown in the image to the left). These models would help others understand and put into place one specific part of creativity that Guilford brought to light: the intellectual requirement.

KERRIE UNSWORTH'S "UNPACKING CREATIVITY"

Moving on from Guilford's model of cognitive ability, Kerrie Unsworth proposed that there was more than just raw intelligence that influenced the creative process. Unsworth argues that context was just as important of a factor of creativity as cognitive ability was. Specifically, Unsworth looked two aspects of context: The problem type and motivation. Unsworth broke down each of these ideas into two categories to better explain each context affects the creative process.

In differentiating the type of problem, Unsworth separated cases based on whether or not a given problem was known. Where closed problems are instances when a problem is clearly defined, open problem must be discovered and searched for. The first step in dealing with open problems is that one needs to discover what the problem is before they can fix it.

Regarding motivation, Unsworth differentiated types of motivation based off of what the source of the driving action was. This means that the motivation could either be internally or externally driven. Using the different types of motivation and problems, Unsworth created a matrix (pictured above) that broke down creativity into four arch-types:

RESPONSIVE CREATIVITY: EXTERNALLY DRIVEN WITH A CLOSED PROBLEM

type, this type of creativity has the least amount of opportunity for creative input, but is often seen in occupational and professional scenarios. Expected creativity: Externally driven with an open problem type, this type of creativity is most often seen in art and poetry where the problem is self-discovered.

Contributory creativity: Internally driven with a closed problem type, this type of creativity often deals with volunteer behaviors as the problem is known, but an individual exercising contributory creativity is doing so on their own will and not being forced by an extrinsic motivator. Proactive creativity: Internally driven with a open problem type, this creativity is when dealing with an uncertain problem that must be found.

Often synonymous with spontaneous creativity as a problem wasn't apparent, but was found and creatively fixed. Through this model, Unsworth shed light on the important topic that is context. As she specifically states, "There are many theories concerning the creative process, yet the proposition that the process may change depending upon the type of creativity has not been considered" (Unsworth, 294).

This is to say that just as Guilford offered cognitive ability as a component of creativity, context is another factor that shapes and mold types of creativity. Additionally, Unsworth made the distinction between innovation and creativity that I had not seen explained before. She explains that innovation is used in regards to the implementation of ideas whereas creativity describes only the generation of ideas.

THE PERSONALITY CONNECTION

Apart from intelligence and context, there is one other leading theory to explain the components of creativity: The personality factor. While being closely related to cognitive ability, personality is another internal factor that affects the creative process. This theory breaks down how personality affects creativity into two options: Little-C: Creativity that can be seen in your everyday life, but these are usually small little opportunities to adapt and change to fit a situation. Big-C: Significant change that affects how others think, feel, and live their lives.

Depending on what kind of personality one has determines what effect it will have on the creative process. For example, say that someone has found a new way to dust shelves. The new method takes half of the normal time of dusting. Now, the little-C personality might think to themselves that this is a creative way for them to go about cleaning the house, and it will even save them a solid hour of cleaning each week. On the other hand, the big-C personality might realize that the implications of this creative breakthrough.

By sharing this news with the world and garnishing support behind this new method, people everywhere might be saving millions of hours collectively dusting their shelves. The creative idea is the same in both cases, however one scenario affects just one individual, while the other situation affected millions of people. The difference is in the personality.

One of the main ways that personality is measured is through J.M. Digman's Big-5 personality traits or OCEAN: Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Digman uses these traits to categorize personality types into measurable quantities. While it is not clear how each of these individual traits affect the creative process, the main point is that personality in its entirety has an influence of the creative process.

TAKEAWAYS FROM THE CREATIVE THEORIES

The evolution of creative theory has brought our understanding of what creativity is from Guilford's solely cognitive representation in the 1900's to our modern day model that includes intellect, context (problem type and motivation), and personality each as factors of influence. Again, I would like to reiterate that each of these models are correct in and of themselves.

Each individual theory is correct not only because the next theory builds off the previous one, but also because they each help explain the creative process for different fields. For instance, personality plays less of a role than cognitive ability in the creative process when trying to find a new way to weld two pieces of metal together. However when trying to find a new way to creatively get votes for a politician, personality might have a much larger role than cognitive ability.

CREATIVITY MISCONCEPTIONS

While I believe that each of these theories have evolved and changed our fundamental understanding of creativity, some would argue that our overall perceptions and understanding of

creativity has not changed. Some would say that while a few components of creativity have changed, our overlying view of creativity as a whole has not changed. This is a common misconception about creativity.

Originally, creativity was thought to be one individual trait that could be measured in the same way that base intellect and physical strength are measured. However due to the research in the above theories and models, the fundamental components of creativity have in fact changed.

This change in the rudimentary parts of the creative process has caused our overarching view of creativity to switch from viewing it as a personality trait to being a broad category that better encompasses all types of creativity than a singular model could ever hope to.

WHY SO MANY THEORIES?

The main point these theories attempt to display is that creativity is a dynamic concept with a multitude of sub-types of creativity. Because creativity is as dynamic and diverse as previously stated, the need for multiple theories to be correct to fit any given context arises.

Now that we understand that there are many different components, parts, and perspectives on what creativity is, I would like to piece together the core arguments in each of these theories to define creativity, not as an single entity, but as a broad category.

WALLACH KOGAN CREATIVITY TEST

In Wallach and Kogan's assessment of creativity, examinees are asked to come up with many possible items that are in a general group.

For example: Name things with wheels. Responses could be:

- a car
- a bicycle
- a lorry
- a train
- a go-cart
- a skateboard
- a scooter
- your mind

This test is scored using four components:

1. **Fluency:** The number of responses is calculated. In the above example, the score would be 8.
2. **Flexibility:** The number of different categories is calculated. The above example would score 2; the first seven are all methods of transportation but "wheel turning in your mind" is a different category, e.g. a metaphor.
3. **Originality:** Each response is compared to the total amount of responses from all of the people given the test.

Responses that were given by only 5% of the group are unusual (1 point).

Responses that were given by only 1% of the group are unique (2 points). Higher total scores indicate an aptitude for original thinking.

4. **Elaboration:** The amount of detail is assessed. For example, "a scooter" = 0, whereas "an electric scooter racing down the pavement" = 1

An additional point would be given if the examinee noted where the scooter car was going. In terms of administration, Wallach and Kogan's test can be done by anyone and there is no special training needed. Typically the test is administered in a classroom setting.

Here are some more examples:

1. Name all the round things you can think of.
2. Name all the things you can think of that will make a noise.
3. Name all the square things you can think of.
4. Name all the things you can think of that move on wheels.

One of my favourite tests is focuses on similarities where children have to think of as many possible similarities between two objects.

Examples:

1. Tell me all the ways in which an apple and orange are alike.
2. Tell me all the ways in which a cat and mouse are alike.
3. Tell me all the ways in which milk and meat are alike.
4. Tell me all the ways in which a radio and a telephone are alike.

Example answers for apple and orange: both round, sweet, have seeds, are fruit, grow on trees, have skins, etc.

This has developed into an active assessment strategy called 'reasoning by analogy' which commonly uses a graphic organiser to identify similarities between objects or events, such as structural or functional similarities. They are used to illustrate some sort of relationship between things being compared.

In the book Start Thinking by Marcelo Staricoff and Alan Rees, they provide an example of reasoning by analogy that also asks students to consider differences.

What are the similarities and differences between blood and tomato ketchup?

Similarities include: both a red, both have sugar in them, both are used by people etc

Differences include: blood is thinner, blood is darker, ketchup is made in a factory, etc

RELATIONSHIP BETWEEN INTELLIGENCE AND CREATIVITY

Intelligence is a complex characteristic of cognition. Many theories have been developed to explain what intelligence is and how it works. There's Sternberg's triarchic theory of intelligence that focuses on analytical, creative, and practical intelligence, but there is also Gardner's theory which holds that intelligence is comprised of many factors. Still other theories focus on the

importance of emotional intelligence.

Classifying Intelligence

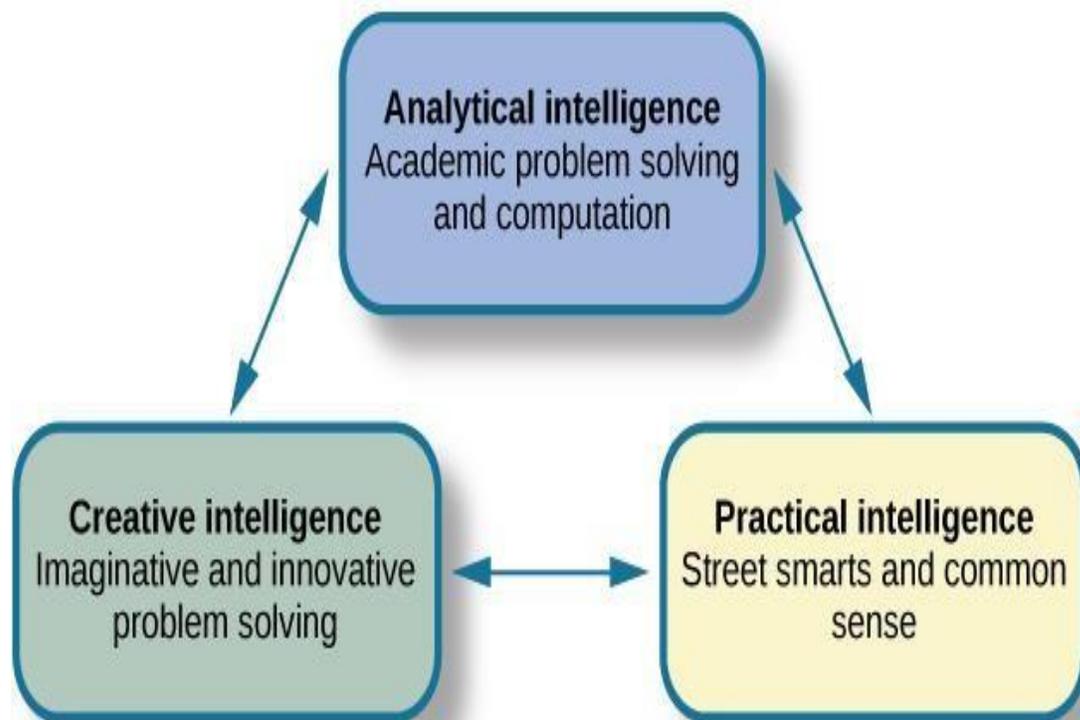
What exactly is intelligence? The way that researchers have defined the concept of intelligence has been modified many times since the birth of psychology. British psychologist Charles Spearman believed intelligence consisted of one general factor, called *g*, which could be measured and compared among individuals. Spearman focused on the commonalities among various intellectual abilities and de-emphasized what made each unique.

Long before modern psychology developed, however, ancient philosophers, such as Aristotle, held a similar view (Cianciolo & Sternberg, 2004). Other psychologists believe that instead of a single factor, intelligence is a collection of distinct abilities. In the 1940s, Raymond Cattell proposed a theory of intelligence that divided general intelligence into two components: crystallized intelligence and fluid intelligence (Cattell, 1963).

Crystallized intelligence is characterized as acquired knowledge and the ability to retrieve it. When you learn, remember, and recall information, you are using crystallized intelligence. You use crystallized intelligence all the time in your coursework by demonstrating that you have mastered the information covered in the course.

Fluid intelligence encompasses the ability to see complex relationships and solve problems. Navigating your way home after being detoured onto an unfamiliar route because of road construction would draw upon your fluid intelligence. Fluid intelligence helps you tackle complex, abstract challenges in your daily life, whereas crystallized intelligence helps you overcome concrete, straightforward problems (Cattell, 1963).

Other theorists and psychologists believe that intelligence should be defined in more practical terms. For example, what types of behaviors help you get ahead in life? Which skills promote success? Think about this for a moment. Being able to recite all 44 presidents of the United States in order is an excellent party trick, but will knowing this make you a better person?



Robert Sternberg developed another theory of intelligence, which he titled the **triarchic theory of intelligence** because it sees intelligence as comprised of three parts (Sternberg, 1988): practical, creative, and analytical intelligence (Figure 1).

Figure 1. Sternberg's theory identifies three types of intelligence: practical, creative, and analytical.

Practical intelligence, as proposed by Sternberg, is sometimes compared to "street smarts." Being practical means you find solutions that work in your everyday life by applying knowledge based on your experiences. This type of intelligence appears to be separate from traditional understanding of IQ; individuals who score high in practical intelligence may or may not have comparable scores in creative and analytical intelligence (Sternberg, 1988).

This story about the 2007 Virginia Tech shootings illustrates both high and low practical intelligences. During the incident, one student left her class to go get a soda in an adjacent building. She planned to return to class, but when she returned to her building after getting her soda, she saw that the door she used to leave was now chained shut from the inside.

Instead of thinking about why there was a chain around the door handles, she went to her class's

window and crawled back into the room. She thus potentially exposed herself to the gunman. Thankfully, she was not shot. On the other hand, a pair of students was walking on campus when they heard gunshots nearby. One friend said, "Let's go check it out and see what is going on." The other student said, "No way, we need to run away from the gunshots." They did just that. As a result, both avoided harm.

The student who crawled through the window demonstrated some creative intelligence but did not use common sense. She would have low practical intelligence. The student who encouraged his friend to run away from the sound of gunshots would have much higher practical intelligence.

Analytical intelligence is closely aligned with academic problem solving and computations. Sternberg says that analytical intelligence is demonstrated by an ability to analyze, evaluate, judge, compare, and contrast. When reading a classic novel for literature class, for example, it is usually necessary to compare the motives of the main characters of the book or analyze the historical context of the story.

In a science course such as anatomy, you must study the processes by which the body uses various minerals in different human systems. In developing an understanding of this topic, you are using analytical intelligence. When solving a challenging math problem, you would apply analytical intelligence to analyze different aspects of the problem and then solve it section by section.

Multiple Intelligences Theory was developed by Howard Gardner, a Harvard psychologist and former student of Erik Erikson. Gardner's theory, which has been refined for more than 30 years, is a more recent development among theories of intelligence. In Gardner's theory, each person possesses at least eight intelligences. Among these eight intelligences, a person typically excels in some and falters in others (Gardner, 1983).

The following table describes each type of intelligence.

Intelligence Type	Characteristics
Linguistic	Perceives different functions of language, different
Intelligence Type	Characteristics
intelligence	sounds and meanings of words, may easily learn multiple languages
Logical- mathematical intelligence	Capable of seeing numerical patterns, strong ability to use reason and logic
Musical intelligence	Understands and appreciates rhythm, pitch, and tone; may play multiple instruments or perform as a vocalist

Bodily kinesthetic intelligence	High ability to control the movements of the body and use the body to perform various physical tasks	
Spatial intelligence	Ability to perceive the relationship between objects and how they move in space	
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Spatial intelligence	Ability to perceive the relationship between objects and how they move in space	
Intelligence Type	Characteristics	
Interpersonal intelligence	Ability to understand and be sensitive to the various emotional states of others	s
Intrapersonal intelligence	Ability to access personal feelings and motivations, and use them to direct behavior and reach personal goal	
Naturalist intelligence	High capacity to appreciate the natural world and interact with the species within it	
Multiple Intelligences		

Gardner's theory is relatively new and needs additional research to better establish empirical support. At the same time, his ideas challenge the traditional idea of intelligence to include a wider variety of abilities, although it has been suggested that Gardner simply relabeled what other theorists called "cognitive styles" as "intelligences" (Morgan, 1996). Furthermore, developing traditional measures of Gardner's intelligences is extremely difficult (Furnham, 2009; Gardner & Moran, 2006; Klein, 1997). Gardner's inter- and intrapersonal intelligences are often combined into a single type: emotional intelligence.

Emotional intelligence encompasses the ability to understand the emotions of yourself and others, show empathy, understand social relationships and cues, and regulate your own emotions and respond in culturally appropriate ways (Parker, Saklofske, & Stough, 2009). People with high

emotional intelligence typically have well-developed social skills. Some researchers, including Daniel Goleman, the author of *Emotional Intelligence: Why It Can Matter More than IQ*, argue that emotional intelligence is a better predictor of success than traditional intelligence (Goleman, 1995).

However, emotional intelligence has been widely debated, with researchers pointing out inconsistencies in how it is defined and described, as well as questioning results of studies on a subject that is difficult to measure and study empirically (Locke, 2005; Mayer, Salovey, & Caruso, 2004). Intelligence can also have different meanings and values in different cultures. If you live on a small island, where most people get their food by fishing from boats, it would be important to know how to fish and how to repair a boat.

If you were an exceptional angler, your peers would probably consider you intelligent. If you were also skilled at repairing boats, your intelligence might be known across the whole island. Think about your own family's culture. What values are important for Latino families? Italian families? In Irish families, hospitality and telling an entertaining story are marks of the culture. If you are a skilled storyteller, other members of Irish culture are likely to consider you intelligent.

Some cultures place a high value on working together as a collective. In these cultures, the importance of the group supersedes the importance of individual achievement. When you visit such a culture, how well you relate to the values of that culture exemplifies your cultural intelligence, sometimes referred to as cultural competence.

Creativity happens when someone comes up with a creative idea. An example would be a creative solution to a difficult problem. But what makes an idea or solution creative? Creativity is the ability to generate, create, or discover new ideas, solutions, and possibilities. Very creative people often have intense knowledge about something, work on it for years, look at novel solutions, seek out the advice and help of other experts, and take risks.

Although creativity is often associated with the arts, it is actually a vital form of intelligence that drives people in many disciplines to discover something new. Creativity can be found in every area of life, from the way you decorate your residence to a new way of understanding how a cell works.

Although psychologists have offered several definitions of creativity (Plucker, Beghetto, & Dow, 2004; Runco & Jaeger, 2012), probably the best definition is the one recently adapted from the three criteria that the U.S. Patent Office uses to decide whether an invention can receive patent protection (Simonton, 2012). The first criterion is originality. The idea must have a low probability. Indeed, it often should be unique. Albert Einstein's special theory of relativity certainly satisfied this criterion. No other scientist came up with the idea.

The second criterion is usefulness. The idea should be valuable or work. For example, a solution must, in fact, solve the problem. An original recipe that produces a dish that tastes too terrible to eat cannot be creative. In the case of Einstein's theory, his relativity principle provided explanations for what otherwise would be inexplicable empirical results.

The third and last criterion is surprise. The idea should be surprising, or at least nonobvious (to use the term used by the Patent Office). For instance, a solution that is a straightforward derivation from acquired expertise cannot be considered surprising even if it were original. Einstein's relativity theory was not a step-by-step deduction from classical physics but rather the theory was built upon a new foundation that challenged the very basis of traditional physics.

When applying these three criteria, it is critical to recognize that originality, usefulness, and surprise are all quantitative rather than qualitative attributes of an idea. Specifically, we really have to speak of degree to which an idea satisfies each of the three criteria. In addition, the three attributes should have a zero point, that is, it should be possible to speak of an idea lacking any originality, usefulness, or surprise whatsoever.

Finally, we have to assume that if an idea scores zero on any one criterion then it must have zero creativity as well. For example, someone who reinvents the wheel is definitely producing a useful idea, but the idea has zero originality and hence no creativity whatsoever. Similarly, someone who invented a parachute made entirely out of steel reinforced concrete would get lots of credit for originality—and surprise!—but none for usefulness.

The first is the Remote Associates Test, or RAT, that was introduced by Mednick (1962). Mednick believed that the creative process requires the ability to associate ideas that are considered very far apart conceptually. The RAT consists of items that require the respondent to identify a word that can be associated to three rather distinct stimulus words. For example, what word can be associated with the words "widow, bite, monkey"?

The answer is spider (black widow spider, spider bite, spider monkey). This particular question is relatively easy, others are much more difficult, but it gives you the basic idea. The second measure is the Unusual Uses Task (Guilford, 1967; Torrance, 1974). Here, the participant is asked to generate alternative uses for a common object, such as a brick.

The responses can be scored on four dimensions: (a) fluency, the total number of appropriate uses generated; (b) originality, the statistical rarity of the uses given; (c) flexibility, the number of distinct conceptual categories implied by the various uses; and (d) elaboration, the amount of detail given for the generated uses. For example, using a brick as a paperweight represents a different conceptual category that using its volume to conserve water in a toilet tank. The capacity to produce unusual uses is but one example of the general cognitive ability to engage in **divergent thinking** (Guilford, 1967).

Unlike **convergent thinking**, which converges on the single best answer or solution, divergent thinking comes up with multiple possibilities that might vary greatly in usefulness. Unfortunately, many different cognitive processes have been linked to creativity (Simonton & Damian, 2013). That

is why we cannot use the singular; there is no such thing as the “creative process.” Nonetheless, the various processes do share one feature:

All enable the person to “think outside the box” imposed by routine thinking—to venture into territory that would otherwise be ignored (Simonton, 2011). Creativity requires that you go where you don’t know where you’re going.

UNIT-6

THINKING, INTELLIGENCE AND CREATIVITY MCQS

1) The fundamental purpose for the existence of any organization is described by its

- a. policies
- b. mission
- c. procedures
- d. strategy

Ans. B

2) The fundamental purpose of an organization’s mission statement is to

- a. create a good human relations climate in the organization
- b. define the organization’s purpose in society
- c. define the operational structure of the organization
- d. generate good public relations for the organization

Ans. B

3) The acronym SWOT stands for

- a. Special Weapons for Operations Timeliness
- b. Services, Worldwide Optimization, and Transport
- c. Strengths Worldwide Overcome Threats
- d. Strengths, Weaknesses, Opportunities, and Threats

Ans. D

4) Which of the following is not a characteristic of strategic management that makes it different from other types of management?

- a. It is interdisciplinary.
- b. It has an external focus.
- c. It has an internal focus.
- d. It concerns the present direction of the organization.

Ans. D

5) Which of the following is an issue considered in developing corporate strategies?

- a. What business(es) are we in?

- b. What direction are we going?
- c. What resources do we have to implement our strategies?
- d. What businesses are we in and what to do with those businesses?

Ans. C

- 6) Which of the following is NOT a major element of the strategic management process?
- a. Formulating strategy
 - b. Implementing strategy
 - c. Evaluating strategy
 - d. Assigning administrative tasks

Ans. D

- 7) Competitive advantage can best be described as:
- a. increased efficiency.
 - b. what sets an organization apart.
 - c. a strength of the organization.
 - d. intangible resources.

Ans. A

- 8) ___ is the foundation of blue ocean strategy.
- a. Innovation
 - b. Value creation
 - c. Value innovation
 - d. value cost trade-off

Ans. C

- 9) The various organizational routines and processes that determine how efficiently and effectively the organization transforms its inputs into outputs are called:
- a. strengths.
 - b. core competencies.
 - c. capabilities.
 - d. customer value.

Ans. B

- 10) When defining strategic management the most important thing to remember is that it is:
- a. Not as easy as you think
 - b. Mainly the province of senior managers
 - c. A living evolving process
 - d. More conceptual than practical
 - e. A way of determining responsibilities

Ans. C

- 11) An organisation's strategy:

- a. remains set in place longer than the mission and objectives
- b. generally forms over a period of time as events unfold
- c. tends to be formed at the same time the mission is developed and objectives are formulated
- d. is usually conceived at a single time when managers sit down and work out a comprehensive strategic plan for the next 3-5 years

Ans. B

12) The primary focus of strategic management is:

- a. strategic analysis
- b. the total organisation
- c. strategy formulation
- d. strategy implementation.

Ans. B

13) Which of the following is not an advantage of strategic management?

- a. It provides organisations with a clearer sense of direction and purpose
- b. It helps improve the political, economic, social and technological environment of the organisation
- c. It helps orientate management decisions to relevant environmental conditions
- d. It helps organisations be proactive rather than reactive

Ans. B

14) Which of the following defines what business or businesses the firm is in or should be in?

- a. Business strategy
- b. Corporate strategy
- c. Functional strategy
- d. National strategy

Ans. B

15) Which of the following defines how each individual business unit will attempt to achieve its mission?

- a. Business strategy
- b. Corporate strategy
- c. Functional strategy
- d. National strategy

Ans. A

16) Which of the following focuses on supporting the corporate and business strategies?

- a. Competitive strategy
- b. Corporate strategy
- c. Operational strategy
- d. National strategy

e. Mission strategy

Ans. C

17) Which one of the following is not a primary task of strategic managers?

- a. Establishing strategic objectives
- b. Developing the steps to follow in implementing operational level plans
- c. Defining the business and developing a mission
- d. Developing a strategy
- e. Implementing and evaluating the chosen strategy

Ans. B

18) The task of strategy choice involves:

- a. developing plans and activities which will improve the
- b. organisation's performance and competitive position
- c. determining how the organisation can be more market and efficiency oriented
- d. monitoring whether the organisation is achieving good financial performance
- e. keeping the organisation free of debt

Ans. A

19) Which one of the following is at the core of strategic management?

- a. Choosing which organisational objectives to focus on
- b. Being alert for opportunities to change work responsibilities
- c. Adapting the organisation to a changing external environment
- d. Choosing whether to make decisions autocratically or on the basis of participation

Ans. C

20) The corporate level is where top management directs:

- a. all employees for orientation
- b. its efforts to stabilize recruitment needs
- c. overall strategy for the entire organization
- d. overall sales projections

Ans. C

21) The three organizational levels are:

- a. corporate level, business level, functional level
- b. corporate level, business unit level, functional level
- c. corporate strategy level, business unit level, functional level
- d. corporate strategy level, business level, specialist level

Ans. A

22) Which of the following is an example of competing on quick response?

- a. a firm produces its product with less raw material waste than its competitors
- b. a firm offers more reliable products than its competitors
- c. a firm's products are introduced into the market faster than its competitors'
- d. a firm's research and development department generates many ideas for new products

Ans. C

23) Which one of the following is NOT included in the Porter's Five Forces model:

- a. Potential development of substitute products
- b. Bargaining power of suppliers
- c. Rivalry among stockholders
- d. Rivalry among competing firms

Ans. C

24) What is meant by the term 'Stakeholder'?

- a. A person who is not related with a business.
- b. A person who is related with a business.
- c. A person who owns a business.
- d. A person who purchases the shares of a business.

Ans. B

25) Of the following, which one would NOT be considered one of the components of a mission statement?

- a. The target market for XYZ is oil and gas producers as well as producers of chemicals.
- b. XYZ shall hire only those individuals who have with sufficient educational levels so as to be of benefit to our customers
- c. The customers of XYZ shall include global and local consumers of gas and oil products and domestic users of nontoxic chemicals
- d. The technologies utilized by XYZ shall focus upon development of alternative sources of gas and oil so as to remain competitive within the industry

Ans. B

26) The strategic management process is

- a. a set of activities that will assure a temporary advantage and average returns for the firm.
- b. a decision-making activity concerned with a firm's internal resources, capabilities, and competencies, independent of the conditions in its external environment.
- c. a process directed by top- management with input from other stakeholders that seeks to achieve above-average returns for investors through effective use of the organization's resources.
- d. the full set of commitments, decisions, and actions required for the firm to achieve above-average returns and strategic competitiveness..

Ans. D

27) The goal of the organization's _____ is to capture the hearts and minds of employees, challenge them, and evoke their emotions and dreams.

- a. vision

- b. mission
- c. culture
- d. strategy

Ans. A

28) A firm's mission

- a. is a statement of a firm's business in which it intends to compete and the customers which it intends to serve.
- b. is an internally-focused affirmation of the organization's financial, social, and ethical goals.
- c. is mainly intended to emotionally inspire employees and other stakeholders.
- d. is developed by a firm before the firm develops its vision.

Ans. A

29) The environmental segments that comprise the general environment typically will NOT include

- a. demographic factors.
- b. sociocultural factors.
- c. substitute products or services.
- d. technological factors.

Ans. C

30) An analysis of the economic segment of the external environment would include all of the following EXCEPT

- a. interest rates.
- b. international trade.
- c. the strength of the U.S. dollar.
- d. the move toward a contingent workforce.

Ans. D

31) Product differentiation refers to the:

- a. ability of the buyers of a product to negotiate a lower price.
- b. response of incumbent firms to new entrants.
- c. belief by customers that a product is unique.
- d. fact that as more of a product is produced the cheaper it becomes per unit.

Ans. C

32) Which of the following is NOT an entry barrier to an industry?

- a. expected competitor retaliation
- b. economies of scale
- c. customer product loyalty
- d. bargaining power of suppliers

Ans. D

- 33) Switching costs refer to the:
- a. cost to a producer to exchange equipment in a facility when new technologies emerge.
 - b. cost of changing the firm's strategic group.
 - c. one-time costs suppliers incur when selling to a different customer.
 - d. one-time costs customers incur when buying from a different supplier.

Ans. D

- 34) New entrants to an industry are more likely when (i.e., entry barriers are low when...)
- a. it is difficult to gain access to distribution channels.
 - b. economies of scale in the industry are high.
 - c. product differentiation in the industry is low.
 - d. capital requirements in the industry are high.

Ans. C

- 35) Suppliers are powerful when:
- a. satisfactory substitutes are available.
 - b. they sell a commodity product.
 - c. they offer a credible threat of forward integration.
 - d. they are in a highly fragmented industry.

Ans. C

- 36) The highest amount a firm can charge for its products is most directly affected by
- a. expected retaliation from competitors.
 - b. the cost of substitute products.
 - c. variable costs of production.
 - d. customers' high switching costs.

Ans. B

- 37) All of the following are forces that create high rivalry within an industry EXCEPT
- a. numerous or equally balanced competitors.
 - b. high fixed costs.
 - c. fast industry growth.
 - d. high storage costs.

Ans. C

- 38) According to the five factors model, an attractive industry would have all of the following characteristics EXCEPT:
- a. low barriers to entry.
 - b. suppliers with low bargaining power.
 - c. a moderate degree of rivalry among competitors.
 - d. few good product substitutes.

Ans. A

- 39) Internal analysis enables a firm to determine what the firm

- a. can do.
- b. should do.
- c. will do.
- d. might do.

Ans. A

40) An external analysis enables a firm to determine what the firm

- a. can do.
- b. should do.
- c. will do.
- d. might do.

Ans. D

41) _____ is/are the source of a firm's _____, which is/are the source of the firm's _____.

- a. Resources, capabilities, core competencies
- b. Capabilities, resources, core competencies
- c. Capabilities, resources, above-average returns
- d. Core competencies, resources, competitive advantage

Ans. A

42) In the airline industry, frequent-flyer programs, ticket kiosks, and e-ticketing are all examples of capabilities that are

- a. rare.
- b. causally ambiguous.
- c. socially complex.
- d. valuable.

Ans. D

43) Firms with few competitive resources are more likely

- a. to not respond to competitive actions.
- b. respond quickly to competitive actions.
- c. delay responding to competitive actions.
- d. respond to strategic actions, but not to tactical actions.

Ans. C

44) Competitors are more likely to respond to competitive actions that are taken by

- a. differentiators.
- b. larger companies.
- c. first movers.
- d. market leaders.

Ans. D

45) What can be defined as the art and science of formulating, implementing and evaluating cross functional decisions that enable an organization to achieve its objectives?

- a. Strategy formulation
- b. Strategy evaluation
- c. Strategy implementation
- d. Strategic management
- e. Strategic leading

Ans. D

46) Which of the following is not a cultural product?

- a. Rites
- b. Emotions
- c. Rituals
- d. Sagas
- e. Symbols

Ans. B

47) Which individuals are most responsible for the success and failure of an organization?

- a. Strategists
- b. Financial planners
- c. Personnel directors
- d. Stakeholders
- e. Human resource managers

Ans. A

48) Which of the following is an element of a firm's remote external environment?

- a. Competition
- b. Political agencies
- c. Suppliers
- d. Trade union

Ans. B

49) Long-term objectives should be all of the following except:

- a. measurable.
- b. continually changing.
- c. reasonable.
- d. challenging.
- e. consistent.

Ans. B

50) What are guides to decisionmaking?

- a. laws
- b. rules
- c. policies
- d. procedures
- e. goals

Ans. C

- 51) According to Greenley, strategic management offers all of these benefits except that
- a. it provides an objective view of management problems.
 - b. it creates a framework for internal communication among personnel.
 - c. it encourages a favorable attitude toward change.
 - d. it maximizes the effects of adverse conditions and changes.
 - e. it gives a degree of discipline and formality to the management of a business.

Ans. D

- 52) The vision and mission statement can often be found
- a. in the SEC report.
 - b. in annual reports.
 - c. on customer receipts.
 - d. on supplier invoices.
 - e. on community news bulletins

Ans. B

- 53) Which group would be classified as a stakeholder?
- a. Communities
 - b. Banks
 - c. Suppliers
 - d. Employees
 - e. All of these

Ans. E

- 54) The process of performing an external audit needs to include:
- a. only top level managers, as it's a planning function.
 - b. as many managers and employees as possible.
 - c. primarily front-line supervisors
 - d. between 15 to 20 managers for it to be valid
 - e. stockholders and external government agencies

Ans. B

- 55) Which of the following is not a stage of strategy formulation techniques?
- a. Formulation Framework
 - b. Matching stage
 - c. External factor evaluation
 - d. Decision stage

Ans. B

- 56) ST Strategies is an important strategy to
- a. Match weakness with opportunities of the firm
 - b. Overcome external threats
 - c. Obtain benefit from its resources

d. Overcome its weakness and reducing threats

Ans. B

57) The immediate external environment includes:

- a. Divisions
- b. S. B. U. s
- c. Competitors
- d. Management

Ans. C

58) The ___ comprises economic and social conditions, political priorities and technological developments, all of which must be anticipated, monitored, assessed and incorporated into the executive's decision making.

- a. Internal environment
- b. Task environment
- c. Operating environment
- d. Societal environment

Ans. D

59) Strategic management involves the _____, directing, ___ and controlling of a company's strategy-related decisions and actions.

- a. Financing; marketing
- b. Planning; financing
- c. Planning; organizing
- d. Marketing; planning

Ans. C

60) A strategy is a company's

- a. Value statement
- b. Pricing policy
- c. Game Plan to outsmart competitor
- d. Long-term objective

Ans. C

61) Strategy-formulation concepts and tools

- a. Do not differ greatly for different size and type of organizations
- b. Differ greatly for different size and type of organizations
- c. Do not differ greatly for profit or nonprofit organizations but differ in small and large organizations
- d. None of the mentioned options

Ans. A

62) Annual objectives

- a. Are not critical to success

- b. Serve as guidelines for action, directing and channeling efforts and activities of organization members
- c. Are not important for employee motivation and identification
- d. Do not provide a basis for organizational design

Ans. B

63) Annual objectives

- a. Need not to be consistent
- b. Should be easily achievable
- c. Should be measurable
- d. Should be confidential and not to be communicated throughout the organization

Ans. C

64) Which of the following resources is used by all organizations to achieve desired objectives?

- a. Financial resources,
- b. Physical resources,
- c. Human resources
- d. All of the mentioned options

Ans. D

65) Strategic management is

- a. A pure science.
- b. Based mainly on intuition.
- c. Needed mainly when organizational performance falls.
- d. Based on the use of quantitative and qualitative information.

Ans. D

66) Large-scale, future-oriented plans, for interacting with the competitive environment to achieve company objectives refers to its

- a. Strategy
- b. Goals
- c. Competitive analysis
- d. Dynamic policies

Ans. A

67) Strategic issues require which level of management decisions?

- a. Operative
- b. Top
- c. Front-line
- d. Middle

Ans. B

68) Which of these basic questions should a vision statement answer?

- a. What is our business?

- b. Who are our employees?
- c. Why do we exist?
- d. What do we want to become?

Ans. D

69) _____ is not part of an _____ external audit.

- a. Analyzing competitors
- b. Analyzing financial ratios
- c. Analyzing available technologies
- d. Studying the political environment

Ans. B

70) Strategic management process activate in the sequence of_____

I.Environmental scanning, Strategyformulation, Implementation, control and evaluation

II.Strategy formulation, Environmental scanning,

- a. Mission
- b. Strategy
- c. Objective
- d. Policy

Ans. C

71) "A possible and desirable futurestate of an organization" is called:

- a. Mission
- b. Vision
- c. Strategy implementation
- d. None of above

Ans. B

72) Strategic decisions are based onwhat managers_, rather than on what they__.

- a. Know; forecast
- b. React to; anticipate
- c. Forecast; know
- d. Compromise with; analyze

Ans. C

73) "To improve economic strengthof society and function as a good corporate citizen on a local, state, and national basis in all countries inwhich we do business". This is a mission statement that contains:

- a. Self-concept
- b. Economic concern
- c. Products or Services
- d. Concern for Public Image

Ans. D

74) Strategic-management audit is known as:

- a. Environmental scanning
- b. Strategy formulation
- c. Strategy control
- d. Strategy evaluation

Ans. A

75) Forecasting tools can be broadly categorized into two groups. Those are:

- a. Qualitative, Operational
- b. Quantitative, Operational
- c. Qualitative, Quantitative
- d. Regression and time series analysis

Ans. C

76) _____ identifies a firm's major competitors and their particular strengths and weaknesses in relation to a sample firm's strategic position.

- a. Competitive Profile Matrix
- b. External Factor Evaluation matrix
- c. Internal Factor Evaluation Matrix
- d. Boston consulting group matrix

Ans. A

77) Organizing means an identifiable group of people contributing their efforts towards the attainment of same goal. It is important at the time of:

- a. Environmental scanning
- b. Strategy formulation
- c. Strategy Implementation
- d. Strategy evaluation

Ans. C

78) In a turbulent and competitive free enterprise environment, a firm will succeed only if it takes a(n) _____ stance towards change.

- a. Reactive
- b. Proactive
- c. Anti-regulatory or anti-government
- d. Vision and not mission

Ans. B

79) Which statement best describes intuition?

- a. It represents the marginal factor in decision-making.
- b. It represents a minor factor in decision-making integrated with analysis.
- c. It should be coupled with analysis in decision-making.

- d. It is better than analysis indecision-making.
- e. It is management by ignorance.

Ans. C

80) What are the means by which long-term objectives will be achieved?

- a. Strategies.
- b. Strengths.
- c. Weaknesses.
- d. Policies.
- e. Opportunities.

Ans. A

81) Which of these basic questions should a vision statement answer?

- a. What is our business?
- b. Who are our employees?
- c. Why do we exist?
- d. What do we want to become?
- e. Who are our competitors?

Ans. D

82) When an industry relies heavily on government contracts, which forecasts can be the most important part of an external audit.

- a. economic
- b. political
- c. technological
- d. competitive
- e. Multinational

Ans. B

83) _____ is not part of an external audit.

- a. Analyzing competitors
- b. Analyzing financial ratios
- c. q. Analyzing available technologies
- d. Studying the political environment
- e. Analyzing social, cultural, demographic and geographic forces

Ans. B

84) Which individuals are most responsible for the success and failure of an organization?

- a. Strategists
- b. Financial planners
- c. Personnel directors
- d. Stakeholders
- e. Human resource managers

Ans. A

85) Long-term objectives should be all of the following except:

- a. Measurable.
- b. Continually changing.
- c. Reasonable.
- d. Challenging.
- e. Consistent.

Ans. B

86) What are guides to decisionmaking?

- a. laws
- b. rules
- c. policies
- d. procedures
- e. goals

Ans. C

87) Which group would be classified as a stakeholder?

- a. Communities
- b. Banks
- c. Suppliers
- d. Employees
- e. All of the given options

Ans. E

88) Typically how many strategic decision levels are in the corporate decision-making hierarchy?

- a. 3
- b. 4
- c. could be more than 5
- d. 2

Ans. A

89) Which type of trend can be exemplified by the increasing numbers of two-income households in a society?

- a. Social
- b. Economic
- c. Cultural
- d. Technological

Ans. B

90) External assessment is performed in which of the strategic management phase?

- a. Strategy formulation stage
- b. Strategy implementation stage
- c. Strategy evaluation stage
- d. All of the given options

Ans. A

- 91) Political variables have a significant effect on
- Strategy formulation and implementation
 - Strategy formulation and evaluation
 - Strategy implementation and evaluation
 - Strategy formulation, implementation and evaluation

Ans. A

- 92) Strategic decisions ostensibly commit the firm for
- 1-2 years
 - The short term
 - one year
 - A long time, typically five years

Ans. D

- 93) Social responsibility is a critical consideration for a company's strategic decision makers since
- Stockholders demand it
 - The mission statement must express how the company intends to contribute to the societies that sustain it
 - It increases a company's profits
 - It helps make decisions

Ans. B

94) "The perfect search engine would understand exactly what you mean and give back exactly what you want", this statement is included in the mission statement of an online firm and is showing which one of the following components?

- Self-concept
- Concern for public image
- A declaration of attitude
- Philosophy

Ans. B

- 95) Which of the following are signs of weakness in a company's competitive position?
- A return-on-equity is below 25% and earnings per share of less than Rs. 2.00
 - A price set by the firm higher than its rivals
 - A declining market share, poor product quality and few sales in market
 - Lower revenues and profit margin and narrow product line than the market leader

Ans. C

96) It directs at developing new products before competitors do at improving product quality or at improving manufacturing processes to reduce costs.

- Marketing

- b. Opportunity analysis
- c. Research and development
- d. Management

Ans. C

97) "Identifying and evaluating key social, political, economic, technological and competitive trends and events". Which of the following best describes this statement?

- a. Developing an effective mission statement
- b. Conducting an internal audit
- c. Performing an external audit
- d. Formulating strategy

Ans. C

98) What is the central purpose of strategic evaluation?

- a. Evaluate effectiveness of strategy to achieve organisational objectives.
- b. Evaluate effectiveness of control system to measure achievements.
- c. Evaluate effectiveness of strategies to be implemented efficiently.
- d. Evaluate effectiveness of the strategy implementation process.

Ans. A

99) Strategy evaluation at the ___ level involves using specific performance measures-qualitative and quantitative-for each functional area.

- a. organizational
- b. operational
- c. functional
- d. production

Ans. c

100) According to Flavell (1977), perception, thinking and reasoning about humans and human affairs is known as:

- a. Social Cognition
- b. Social Perception
- c. Conceptualization
- d. Socialization

Ans. A

101) When children recognize that each individual is aware of other people's thoughts and feelings, it is called:

- a. Self-reflection
- b. Mutual role taking
- c. Social information role taking
- d. Social and conventional system role taking

Ans. A

102) The shared emotional responses which the child experiences on perceiving other's emotional reactions is known as:

- a. Empathy
- b. Epathy
- c. Mood
- d. Emotional Trauma

Ans. A

103) "Mutual Role Taking Stage" is found among children:

- a. Between the ages 10 and 12
- b. Between the ages 18 and 24
- c. Between the ages 6 and 8
- d. between the ages 2 and 6

Ans. A

104) In which "role taking stage", children realize that there are integrated networks of perspectives such as American or a catholic point of view?

- a. Social and Conventional System of Role Taking
- b. Mutual Role Taking
- c. Self-reflection
- d. Social Informational Role Taking

Ans. A

105) Who concluded in his theory that from ages 5 to about 12, a child's concept of justice passes from moral realism to moral relativism?

- a. W. B. Watson
- b. Sigmund Freud
- c. Jean Piaget
- d. Karniol

Ans. C

106) Around age 11, children think that everyone has equal right to justice and consideration. It is called:

- a. Moral Relativism
- b. Moral Realism
- c. Moral Biting
- d. Moral Consequence

Ans. A

107) Stages of moral development for children were emphasized by:

- a. LB. Watson
- b. E. B. Titchener
- c. Sigmund Freud
- d. Kohlberg

Ans. D

108) Moral Development is related to and dependent upon:

- a. Intellectual Development
- b. Socialization
- c. Learning
- d. Perception

Ans. A

109) Genetic studies of children over varying lengths of time have emphasized the persistence of the two elements of the personality pattern:

- a. The self-concept and traits
- b. Moral development and socialization
- c. Language development and concept formation
- d. Prenatal development and play

Ans. A

110) According to Freud, the period from the end of the oedipal stage around 6 years is called:

- a. Genital Stage
- b. Latency Period
- c. Phallic Stage
- d. Oral Stage

Ans. B

111) A system of learning which was first demonstrated by Tolman in 1932 is known as:

- a. Latent Learning
- b. Trial and Error Learning
- c. Conditioning
- d. Insightful learning

Ans. A

112) A girl who is sexually attracted to members of her own sex is called:

- a. A lesbian
- b. A sexologist
- c. A heterosexual girl
- d. A homosexual girl

Ans. A

113) The term originally used by Freud to refer to sexual energy which is derived from the id and is available to power mental and physical activity is known as:

- a. Ego
- b. Super ego
- c. Libido
- d. Instinct

Ans. C

114) A simplified form of speech that adults adopt when talking to very young children is called:

- a. Motherese
- b. Mothering
- c. Matter
- d. Maturation

Ans. A

115) Bowlby's original idea of the way in which attachment develops between the young infant and its mother is called:

- a. Maternal Drive
- b. Monotrophy
- c. Socialization
- d. Affection

Ans. B

116) The identical twins who are developed from the same fertilized ovum which has subsequently split to develop as two independent Fetus are known as:

- a. Monozygotic Twins
- b. Fraternal Twins
- c. Separated Twins
- d. Socialized Twins

Ans. A

117) The condition in which an adult is sexually attracted to children and can only achieve sexual arousal with them is popularly known as:

- a. Pedophilia
- b. Astasia Abasia
- c. Amnesia
- d. Phobia

Ans. A

118) A term is frequently used in experiments for the level at which a person or animal or a child performs on a particular task. What is it?

- a. Variable
- b. Performance
- c. Hypothesis
- d. Problem

Ans. B

119) The words that children seem to use in the earliest stage of language acquisition are known as:

- a. Symbols

- b. Pivot words
- c. Gestures
- d. Concepts

Ans. B

120) An approach for studying language which concentrates on the functions that language performs rather than on the structure of the language itself is called:

- a. Pragmatics
- b. Psycholinguistics
- c. Concept formation
- d. Symbolism

Ans. A

121) The study of personal space and the use of touch as nonverbal cues in communication is known as:

- a. Concept
- b. Proxemics
- c. Symbol
- d. Gesture

Ans. B

122) The study of psychological aspects of language and the relationships between language and other psychological processes is known as:

- a. Psycholinguistics
- b. Concept formation
- c. Verbal learning
- d. Verbal Accommodation

Ans. B

123) The stage of physical growth during which the child becomes capable of reproduction is called:

- a. Puberty
- b. Maturation
- c. Menstruation
- d. Adolescence

Ans. A

124) The extent to which a message does not provide new information in "Information Theory" is called:

- a. Redundancy
- b. Concept
- c. Construct
- d. Hypothesis

Ans. A

125) A retreat under stress to an earlier psychosexual stage is called:

- a. Aggression
- b. Regression
- c. Rationalization
- d. Rehearsal

Ans. B

126) "One's expectations can have an effect on an outcome that is being observed."—who has given the above statement?

- a. Rosenthal
- b. Wilhelm Wundt
- c. W.B. Watson
- d. Jean Piaget

Ans. A

127) The process by which our senses adjust their sensitivity to the surrounding environment is called:

- a. Perception
- b. Attention
- c. Sensory Adaptation
- d. Distraction

Ans. A

128) The process by which a child becomes integrated into society by adopting its norms and values, acquiring the necessary skills of social interaction is known as :

- a. Socialization
- b. Social Interaction
- c. Sociability
- d. Affiliation

Ans. A

129) The process by which two people or animals directly each other's behaviour is called:

- a. Social Interaction
- b. Socialization
- c. Affiliation
- d. Sociability

Ans. A

130) Yerkes-Dodson Law is associated with:

- a. Socialization
- b. Affiliation
- c. Social Facilitation
- d. Social Interaction

Ans. C

131) The study of social forms of language and the ways in which language is used in society is known as:

- a. Sociolinguistics
- b. Psycholinguistics
- c. Bilingualism
- d. Trilingualism

Ans. A

132) A device to convert a biological signal such as heart-beat or skin resistance into an electrical signal suitable for recording is known as:

- a. Transducer
- b. Trans-sexual
- c. Galvanometer
- d. Transdoctor

Ans. C

133) A genetic disorder in which the individual has one fewer chromosome than normal resulting in sexual abnormalities is called:

- a. Turner's Syndrome
- b. Brown's Syndrome
- c. Down's Syndrome
- d. Schizophrenia

Ans. A

134) An irrational and excessive fear of strangers is known as:

- a. Ophophobia
- b. Acrophobia
- c. Xenophobia
- d. Agrophobia

Ans. C

135) A rigid and inflexible notion of right and wrong in which "justice is subordinated to adult authority" is known as:

- a. Moral Realism
- b. Moral Relativism
- c. Moral Consequences
- d. Moral Biting

Ans. A

136) Developmental Psychology studies the description, explanation and prediction of:

- a. Child Behaviour
- b. Adult Behaviour

- c. Old age problems
- d. School problems

Ans. A

137) In which period, children were forced to behave and act like adults and according to adult standards?

- a. Ancient Period
- b. Medieval Period
- c. Vedic Period
- d. Modern Period

Ans. A

138) According to the preformationist concept, all adult qualities are found at:

- a. Birth
- b. Death
- c. Adulthood
- d. Adolescence

Ans. A

139) The society during pre-victorian era was:

- a. Adult-centred
- b. Child-centred
- c. Adolescent-centred
- d. Old men-centred

Ans. A

140) In a book "EMILE" (1762), it was depicted that the child is gifted with an innate moral sense. Who is the author of that book?

- a. J. J. Rousseau
- b. Pestalozzi
- c. Tiedmann
- d. John Locke

Ans. A

141) Maximum number of Baby Biographies was published in:

- a. The 19th century
- b. The 20th century
- c. The 18th century
- d. The 16th century

Ans. A

142) Because of large number of studies on "Child Behaviour" and tremendous emphasis on Child and Developmental psychology, 20th century is called the :

- a. Century of Adults

- b. Century of the child
- c. Century of men and women
- d. Century of women

Ans. A

143) The "Questionnaire technique" was made popular by famous American Psychologist:

- a. G. Stanley Hall
- b. J. B. Watson
- c. Rayner
- d. B. F. Skinner

Ans. A

144) At Yale University, who introduced the "Moving Picture Camera" as an aid to observe young children?

- a. Gessel (1926)
- b. Wallace (1961)
- c. Wyalt (1959)
- d. Spitz (1965)

Ans. A

145) The clinic for the treatment of "problem children" was first established by:

- a. Goodenough (1949)
- b. Wittmer (1896)
- c. Hunt (1961)
- d. Wilt Enborn (1956)

Ans. B

146) The behaviour and activities of the child are expressed quantitatively through the:

- a. Behaviour Rating Method
- b. Projective Technique
- c. Follow up Method
- d. Psychophysical Method

Ans. A

147) The testing method for studying children was first introduced by:

- a. Binet (1905)
- b. Piaget (1960)
- c. Gesell (1949)
- d. Hoffman (1967)

Ans. B

148) Which method is generally used when it becomes necessary to find out if the disease or behaviour problems of the child have relapsed after treatment?

- a. Psychophysical Method

- b. Follow-up Method
- c. Behaviour Rating Method
- d. Method of Individual Diagnosis

Ans. B

149) The progressive series of changes of an orderly, coherent type towards the direction of maturity is called:

- a. Growth
- b. Development
- c. Maturation
- d. Adolescence

Ans. B

150) Among the periods of prenatal development, the period of fetus is:

- a. Most lengthy
- b. Dangerous
- c. Called the period of zygote
- d. Very short

Ans. A

151) The period of Ovum is called the:

- a. Period of Zygote
- b. Period of Embryo
- c. Period of fetus
- d. Period of Disturbances

Ans. A

152) Period of Parturate refers to the:

- a. First 15 to 30 minutes of life
- b. First 15 days of life
- c. First three hours of life
- d. First ten days of life

Ans. A

153) Normally the neonate sleeps for:

- a. 24 hours a day
- b. 18 to 20 hours a day
- c. 6 hours a day
- d. 2 hours a day

Ans. B

154) The Period of Parturate refers to the first 15 to 30 minutes of life, until the infant is cut from:

- a. The umbilical cord
- b. The internal world

- c. The external world
- d. The environmental pressure

Ans. A

155) Darwinian Reflex decreases gradually due to:

- a. Cross connectivism
- b. Transfer
- c. Interference
- d. Atrophy through disuse

Ans. D

156) If an object is placed in the baby's palm, the fingers are closed so strongly that the neonates can support their entire weight by their hands. This prenatal posture is retained by most infants for 3 to 4 weeks after birth. This is popularly known as:

- a. Darwinian Reflex
- b. Luckian Reflex
- c. Pavlovian Reflex
- d. Watsonian Reflex

Ans. A

157) When the infant is placed on his back, he will throw his legs and hands upward as if he is going to embrace somebody. This is popularly known as:

- a. Moro Embrace Reflex
- b. Sucking Reflex
- c. Ocular Reflex
- d. Foot Reflex

Ans. A

158) The development of the ability to walk upright is called:

- a. Locomotor Development
- b. Sensorimotor Learning
- c. Transfer of Training
- d. Bilateral Transfer

Ans. A

159) Ames and Shirley have emphasized the relative stability of the locomotor sequence as an indicator of a function of:

- a. Learning
- b. Maturation
- c. Emotion
- d. Intelligence

Ans. B

160) Who is the author of the famous book "Hereditary Genius"?

- a. Watson
- b. Galton
- c. John Locke
- d. Binet

Ans. B

161) Schiff (1978) has examined the role of genetics in:

- a. Sensory Development
- b. Motor Development
- c. Intellectual Development
- d. Emotional Development

Ans. C

162) Who said – "I propose to show in this book that a man's natural abilities are derived by intelligence under exactly the same limitations as the form and physical features of the whole organic world"?

- a. Galton
- b. J.B. Watson
- c. Binet
- d. Ravens

Ans. A

163) The first part of "Preoperational Period" (Piaget) is known as:

- a. Preconceptual Period
- b. Internal Mental Period
- c. Tertiary Circular Reactions
- d. Secondary Circular Reactions

Ans. A

164) During Pre-operational Period, Children are found to be extremely:

- a. Benevolent
- b. Egocentric
- c. Clever
- d. Intelligent

Ans. B

165) Syrup can be made with water and sugar. Again syrup can be reduced to sugar by putting it in fire. When the child is to understand this, he is said to have the capacity of:

- a. Reversibility
- b. Conservation
- c. Seriation
- d. Casuality

Ans. A

166) The mental ability to arrange things in order is known as:

- a. Seriation
- b. Casuality
- c. Reversibility
- d. Conservation

Ans. A

167) The concrete operational stage is responsible for the stability and integration of the child's:

- a. Emotional System
- b. Cognitive System
- c. Learning System
- d. Memory System

Ans. B

168) The concepts of children are generally developed during the period of:

- a. Intuitive Thought
- b. Preoperational Stage
- c. Secondary Circular Reactions
- d. Tertiary Circular Reaction

Ans. A

169) Mental Age (MA) is a measure of the absolute level of:

- a. Emotion
- b. Intelligence
- c. Creativity
- d. Learning

Ans. B

170) The process of classifying all intellectual abilities into a systematic framework is called:

- a. Structure of Intellect
- b. Structure of Emotion
- c. Structure of Feeling
- d. Structure of Creativity

Ans. A

171) The concept of "Structure of Intellect" was proposed by:

- a. Blewett (1964)
- b. Guilford (1961)
- c. Jensen (1969)
- d. Bayley (1969)

Ans. B

172) According to the model "Structure of Intellect", Guilford revealed that intelligence can be broken into:

- a. 100 factors
- b. 120 factors
- c. 50 factors
- d. 55 factors

Ans. B

173) Who is the author of the article "How much can we boost I.Q. and Scholastic Achievement"?

- a. Prof. Arthur Jensen (1969)
- b. Blewett (1954)
- c. Venkatachar (1930)
- d. Bayley (1969)

Ans. A

174) Jensen's findings indicate the role of heredity on the development and growth of:

- a. Creativity
- b. Emotion
- c. Learning
- d. Intelligence

Ans. D

175) Who has evaluated the findings of "Project Head Start" conducted as a contemporary project to help the socially disadvantaged Negroes and Asiatic origin lower class people ?

- a. Arthur Jensen (1969)
- b. Shields (1962)
- c. Blewett (1954)
- d. Holzinger (1937)

Ans. A

176) While E.B. Titchener holds emotion as an effective state of the organism, Carr (1925) views emotion as a form of:

- a. Energy mobilization
- b. Creativity
- c. Feeling
- d. Daydream

Ans. A

177) Emotional response is weakened if:

- a. Overlearning takes place
- b. Reason is applied
- c. Interference is there
- d. Goal is achieved

Ans. B

178) The most systematic study on the development of emotion in children from a state of general

excitement found at birth has been made by:

- a. Robert Bridges (1932)
- b. J. Hunt (1961)
- c. Hurlock (1978)
- d. Kagan (1962)

Ans. A

179) Impulsive responses of anger are otherwise known as:

- a. Aggression
- b. Regression
- c. Sublimation
- d. Repression

Ans. A

180) Violent outbursts of anger are called:

- a. Temper tantrum
- b. Frustration
- c. Mood
- d. Imprinting

Ans. A

181) Temper tantrum reaches its peak at the age of:

- a. 3 to 4 years
- b. 7 years
- c. 20 years
- d. 25 years

Ans. A

182) Under inhibited response of anger, the child may withdraw to himself as a result of:

- a. Frustration
- b. Learning
- c. Achievement motivation
- d. Distant goal

Ans. A

183) Which mechanism of dream work makes the dream coherent and meaningful?

- a. Secondary Elaboration
- b. Displacement
- c. Sublimation
- d. Dramatization
- e. Condensation

Ans. A

184) Temper tantrum comes to an end by:

- a. 7 years
- b. 19 years
- c. 2 years
- d. 22 years

Ans. B

185) The bright example of self destruction and self aggression is:

- a. Frustration
- b. Suicide
- c. Projection
- d. Introjection

Ans. C

186) Jealousy is an outgrowth of:

- a. Repression
- b. Regression
- c. Anger
- d. Fear

Ans. A

187) The systematized set of vocal habits by means of which the members of a human society interact in terms of their culture is called:

- a. Language
- b. Concept
- c. Thought
- d. Vocabulary

Ans. A

188) When children show resistance to adult authority and does just the opposite of what they ask him to do is called:

- a. Negativism
- b. Rivalry
- c. Bullying
- d. Quarreling

Ans. A

189) "It does indeed seem possible to teach children to think creatively. The most successful approaches seem to be those that involve both cognitive and emotional functioning, provide adequate structures and motivation and give opportunities for involvement, practice and interaction with teachers and other children. Motivating and facilitating conditions certainly make a difference in creative functioning but differences seem to be greatest and most predictable when deliberate teaching is involved. Teachers, though their behaviour in an instructional setting can make a lot of difference in the cognitive and affective life of children but they must be sure of their objectives, whether they count to foster creativity in pupils or their own self-fulfilling prophecy."

Who has made this statement?

- a. Torrance
- b. Jensen
- c. Binett
- d. J.W. Taylor

Ans. A

190) Moral Development is intimately linked with stages of:

- a. Intellectual Development
- b. Emotional Development
- c. Creativity
- d. Imitation

Ans. B

191) Who have shown how the ability to moral judgement behaviour that conforms to approved social standard follow a predictable pattern related to the sequence of stages in intellectual development?

- a. Jensen and Binett
- b. Piaget and Kohlberg
- c. Watson and Reynor
- d. Blanton and Blatt

Ans. A

192) Who viewed that moral development occurs in two clear-cut stages—Morality by constraint and morality by Reciprocity?

- a. Jean Piaget
- b. Jensen
- c. Ravens
- d. Binett

Ans. A

193) Guilt is a negative:

- a. Self evaluation
- b. Attitude
- c. Creativity
- d. Sociability

Ans. A

194) Childhood schizophrenia is otherwise known as:

- a. Autism
- b. Temper tantrum
- c. Antridia
- d. Anaphthalmia

Ans. A

195) If a child's eye ball is abnormally small, he is supposed to be affected by:

- a. Oxycephaly
- b. Antridia
- c. Microphthalmia
- d. Anaphthalmia

Ans. B

196) If a child's eyes do not develop at all, he is supposed to be affected by:

- a. Anaphalmia
- b. Oxycephaly
- c. Anaphthalmia
- d. Microphthalmia

Ans. A

197) Sometimes a child's iris fails to develop, visual acuity becomes poor and there is rapid involuntary movement of eye ball. Here the child is affected by:

- a. Anaphthalmia
- b. Oxycephaly
- c. Antridia
- d. Microphthalmia

Ans. C

198) Schiller Spencer theory of play is otherwise known as:

- a. Preparation for Future Adult Activities
- b. Surplus energy theory of play
- c. Recapitulation theory
- d. Instinct Theory

Ans. B

199) Who was the propounder of "Instinct Theory of Play"?

- a. Staneley Hall
- b. McDougall
- c. Patrick
- d. Spencer

Ans. B

200) 201 Which is the most basic and common obstacle to problem solving ?

- a. Confirmation bias
- b. Fixation
- c. Functional fixedness
- d. Mental set

Ans: B

201) The child who says "Milk gone" is engaging in_____. This type of utterance demonstrates that children are actively experimenting with rules of_.

- a. Babbling; syntax
- b. Telegraphic speech; syntax
- c. Babbling; semantics
- d. Telegraphic speech; semantics

Ans: D

202) Problem solving comprises of four stages. Choose the correct sequence of stages

- a. 1 Incubation, preparation, verification, illumination
- b. Preparation, incubation, illumination, verification
- c. Incubation, preparation, illumination, verification
- d. 4 Preparation, illumination, incubation, verification

Ans: B

203) Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R). Assertion (A) : Thinking about objects brings change in attitudes. Reason (R) : Attitudes toward complex issues and objects are typically a mixture of positive and negative feelings. Codes:

- a. Both (A) and (R) are true and (R) is the correct explanation of (A).
- b. Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- c. (A) is true, but (R) is false.
- d. (A) is false, but (R) is true.

Ans: B

204) A subject is presented four non-sense syllabus one by one each for two seconds. After presentation of the four items, the subject is asked to count backward aloud by threes from some number for fifteen seconds and after that he/she is asked to recall the non-sense syllabus. What memory storage is being measured in this experiment ?

- a. Sensory memory storage
- b. Working memory storage
- c. Short term memory storage
- d. Long term memory storage

Ans: C

205) When the previously learned task affects the retention of task being currently acquired, the phenomenon is referred to as:

- a. Retroactive interference
- b. Proactive interference
- c. Retroactive effect
- d. Proactive effect

Ans: C

206) Assertion (A) : Positive psychology draws its strength from humanistic psychology. Reason (R) : Both humanistic and positive psychology believe in positive human qualities. Codes:
a. Both (A) and (R) are true and (R) is the correct explanation of (A).
b. Both (A) and (R) are true, but (R) is not the explanation of (A).
c. (A) is true, but (R) is false.
d. (A) is false, but (R) is true.
Ans: B

207) The basic difference between classical conditioning and instrumental learning is of
a. Presentation of stimulus
b. Emitting of response
c. Temporal contiguity
d. Mechanism
Ans: D

208) Major criticisms of Thurston's theory of intelligence are based on
I. Use of subjective measures
II. Restricted heterogeneity in sample
III. Method of factor analysis
a. I and II are correct.
b. I and III are correct.
c. II and III are correct.
d. I, II and III are correct.
Ans: C

209) Given below are two statements, one labelled as Assertion (A) and the other labelled as Reason (R). Indicate your answer using the codes given below : Assertion (A) : Heritability of intelligence explains variations due to genetics for individuals within a given population. Reason (R) : Earlier the children from deprived families were adopted, the higher their intelligence score will be. Codes:
a. Both (A) and (R) are true and (R) is the correct explanation of (A).
b. Both (A) and (R) are true, but (R) is not the correct explanation of (A).
c. (A) is true, but (R) is false.
d. (A) is false, but (R) is true.
Ans: B

210) What is the correct sequence of ear parts given below ?
a. Eardrum – Hammer – Anvil – Stirrup – Oval window
b. Oval window – Hammer – Eardrum Anvil – Stirrup
c. Eardrum – Anvil – Stirrup – Hammer – Oval window
d. Oval window – Anvil Hammer – Stirrup – Eardrum

Ans: C

211) We can cope with stress by becoming aware of our irrational, upsetting thoughts and replacing them with rational, calming thoughts. This view represents.

- a. Cognitive behavioural approach
- b. Psychoanalytical approach
- c. Socio-cultural approach
- d. Bio-social approach

Ans: A

212) An instrumental response is conditioned only when organism interprets the reinforcement as being controlled by its response. This view is supported by

- a. Tolman
- b. Skinner
- c. Seligman
- d. Beck

Ans: C

213) When a child gets two chocolates once every week for its performance in the class it is an instance of

- a. Fixed ratio, variable interval
- b. Fixed ratio, fixed interval
- c. Variable ratio, fixed interval
- d. Variable ratio, variable interval

Ans: C

214) In a study on 'Career Aspirations of Students', the respondents were required to state their career aspirations in about sixty words. This would be an example of

- a. Fixed-alternative item
- b. Scale item
- c. Open-end item
- d. Checklist item

Ans: C

215) Which of the following implications cannot be derived from Piaget's theory of cognitive development?

- a. Acceptance of individual differences
- b. Sensitivity of children's readiness to learn
- c. Discovery learning
- d. Need of verbal teaching

Ans: D

216) According to Lev Vygotsky, the primary cause of cognitive development is:

- a. stimulus-response pairing
- b. social interaction
- c. adjustment of mental schemas
- d. equilibration

Ans: B

217) In the context of Kohlberg's stages of moral reasoning, under which stage would the given typical response of a child fall? "Your parents will be proud of you if you are honest. So you should be honest."

- a. Social contract orientation
- b. Punishment-obedience orientation
- c. Good girl-good boy orientation
- d. Law and order orientation

Ans: C

218) According to Jean Piaget, which of the following is necessary for learning?

- a. Active exploration of the environment by the learner
- b. Observing the behaviour of adults
- c. Belief in immanent justice
- d. Reinforcement by teachers and parents

Ans: A

219) According to Jean Piaget, schema building occurs as a result of modifying new information to fit existing schemes and by modifying old schemes as per new information. These two processes are known as:

- a. assimilation and adaptation
- b. accommodation and adaptation
- c. equilibration and modification
- d. assimilation and accommodation

Ans: D

220) According to Piaget, children's thinking differs in from adults than in

- a. size, correctness
- b. amount, kind
- c. kind, amount
- d. size, type

Ans: C

221) According to Vygotsky, children learn

- a. by maturation
- b. when reinforcement is offered
- c. by imitation

d. by interacting with adults and peers

Ans: D

222) Kohlberg has given

- a. the stages of cognitive development
- b. the stages of physical development
- c. the stages of emotional development
- d. Children learn through social interaction with peers and adults

Ans: D

223) According to the pre-conventional level of Kohlberg's theory, to which of the following would an individual turn when making a moral decision?

- a. Personal needs and desires
- b. Individual values
- c. Family expectations
- d. Potential punishment involved

Ans: D

224) Which one of the following statements about children would Vygotsky agree with?

- a. Formal operational
- b. Concrete operational
- c. Sensorimotor
- d. Preoperational

Ans: D

225) In Lawrence Kohlberg's theory, which level signifies the absence of morality in the true sense?

- a. Level III
- b. Level IV
- c. Level I
- d. Level II

Ans: C

226) In Vygotsky's theory, which aspect of development gets neglected

- a. Social
- b. Cultural
- c. Biological
- d. Linguistic

Ans: C

227) Which of the following is based on Vygotsky's socio-cultural theory?

- a. Operant conditioning
- b. Reciprocal teaching
- c. Culture-neutral cognitive development

d. Insight learning

Ans: B

228) Vygotsky emphasized the significance of the role played by which of the following factors in the learning of children?

- a. Moral
- b. Physical
- c. Social
- d. Hereditary

Ans: C

229) A teacher makes use of a variety of tasks to cater to the different learning styles of her learners. She is influenced by

- a. Gardner's multiple intelligence theory
- b. Vygotsky's socio-cultural theory
- c. Piaget's cognitive development theory
- d. Kohlberg's moral development theory

Ans: A

230) According to Kohlberg, a teacher can instill moral values in children by

- a. giving strict instructions on 'how to behave'
- b. involving them in discussions on moral issues
- c. laying clear rules of behaviour
- d. giving importance to religious teachings

Ans: B

231) According to Piaget's stages of Cognitive Development, the sensori-motor stage is associated with

- a. ability to solve problems in logical fashion
- b. concerns about social issues
- c. ability to interpret and analyse options
- d. imitation, memory and mental representation

Ans: D

232) "Children actively construct their understanding of the world" is a statement attributed to

- a. Piaget
- b. Kohlberg
- c. Pavlov
- d. Skinner

Ans: A

233) The 'insight theory of learning' is promoted by

- a. 'Gestalt' theorists

- b. Jean Piaget
- c. Pavlov
- d. Vygotsky

Ans: A

234) Four distinct stages of children's intellectual development are identified by

- a. Erikson
- b. Kohlberg
- c. Skinner
- d. Piaget

Ans: D

235) Which of the following statements describes Piaget and Vygotsky's views on language and thought correctly?

- a. According to Vygotsky, thought emerges first and according to Piaget, language has a profound effect on thought.
- b. Both view language as emerging from the child's thought.
- c. According to Piaget, thought emerges first and according to Vygotsky, language has a profound effect on thought.
- d. Both view thought as emerging from the child's language.

Ans: C

236) The concept of 'private speech' of children as proposed by Vygotsky

- a. shows that children are stupid and thus need guidance of adults.
- b. illustrates that children are egocentric.
- c. shows that children love themselves.
- d. illustrates that children use speech to guide their own actions.

Ans: D

237) According to Vygotsky, learning cannot be separated from

- a. its social context.
- b. perception & attentional processes.
- c. reinforcement.
- d. a measurable change in behaviour.

Ans: A

238) In a constructivist classroom as envisioned by Piaget and Vygotsky, learning

- a. is constructed by the students themselves who play an active role.
- b. is offering of reinforcement by the teacher.
- c. is dictated by the teacher and the students are passive recipients of the same.
- d. happens by pairing of a stimulus and a response.

Ans: A

239) The choice between automatic and controlled processes is:

- a. Typically automatic
- b. Typically controlled
- c. Always automatic
- d. Always controlled

Ans: A

241. Which one of the following statements best summarizes the relationship between development

- a. Influence
- b. Are influenced by
- c. A and B
- d. Neither A nor B

Ans: C

240) Proceduralized judgments are:

- a. Developed without practice
- b. Preemptive over non-proceduralized judgments
- c. Slower than non-proceduralized judgments
- d. Deliberate and thoughtful

Ans: B

241) Judgments about others' ___ are often automatic.

- a. Traits
- b. Behavior
- c. A and B
- d. Neither A nor B

Ans: A

242) Automatic and controlled processes can be triggered by:

- a. Subliminal primes
- b. Supraliminal primes
- c. A and B
- d. Neither A nor B

Ans: C

243) An ironic rebound effect:

- a. Occurs during the period of time when one is asked to suppress thoughts
- b. Occurs when one is no longer attempting to suppress thoughts
- c. Can be prevented by substituting different thoughts for the unwanted thoughts
- d. B and C

Ans: A

244) Goal-directed automaticity is:

- a. Adaptive

- b. Maladaptive
- c. A and B
- d. Neither A nor B

Ans: C

245) The conscious will is an example of:

- a. Automatic process
- b. Controlled process
- c. Intention
- d. Behavior

Ans: B

246) First-order consciousness necessarily involves:

- a. Being mindful
- b. Having self-esteem
- c. Thinking about one's own thoughts
- d. Causing one's own behavior

Ans: A

247) Mind-wandering is an example of:

- a. Stimulus-dependent thought
- b. Stimulus-independent thought
- c. Unconscious thought
- d. Default network deactivation

Answer: B

248) _____ is a thought- sampling technique frequently used outside the laboratory:

- a. Experience sampling
- b. Think-aloud paradigm
- c. Videotaping
- d. A and C

Ans: A

249) It is possible to study people's thoughts in a useful way when:

- a. People report on their thoughts while they are happening
- b. People report on the content of their thoughts
- c. People report on their thought processes
- d. A and B

Ans: D

250) The human need to belong preempts:

- a. The need for understanding
- b. The need for social control
- c. Controlled processes in social cognition

d. All of the above

Ans: A

251) The dual-process model and continuum model of impression formation:

- a. Do not depend on motivation
- b. Both propose stable cognitive representations at different stages of impression formation
- c. Both suggest distinct rules for proceeding to each stage of impression formation
- d. Both involve an interplay of automatic and controlled processes

Ans: D

252) Cognitive structures, according to Piaget's theory, are all of the following except—

- a. Concept, beliefs, abilities or perceptual styles
- b. Physiological organs
- c. End results of continuous interrupting between maturation and experience
- d. Foundation stones of child's intellectual development.

Ans: B

253) What is the example of thinking fan, car, radio as alive things by child?

- a. Inappropriate thinking
- b. Imaginative thinking
- c. Animism
- d. Egocentrism

Ans: C

254) Distinctive feature of a concept varying from concept to concept is known as—

- a. Concept value
- b. Concept attribute
- c. Concept quality
- d. Concept uniqueness

Ans: B

255) When the muscles necessary for speaking are paralyzed then—

- a. Thinking cannot go on
- b. Verbal thinking cannot go on
- c. Verbal thinking can go on
- d. Problem solving ability is hampered

Ans: C

256) The symbols used in thinking are—

- a. Images
- b. Languages
- c. Concept
- d. All of the above

Ans: D

257) A condition which is not favourable in reasoning is—

- a. Suggestion
- b. Interest
- c. Attention
- d. Motivation

Ans. A

258) The rules used in problem solving are—

- a. Algorithm
- b. Heuristics
- c. Both (A) and (B)
- d. Theorems

Ans. C

259) According to Guilford creative ability is—

- a. Highly specified associated with particular subject matter or disciplines.
- b. Somewhat general which can be applied to a variety of tasks.
- c. A composite of primary mental abilities as found by Thurstone
- d. A developed mental capacity of highly abstract nature.

Ans. B

260) Which is not an attribute of the concept?

- a. Concreteness, observability and measurability
- b. Psychological meaningfulness
- c. Intrinsic, functional and formal properties.
- d. Abstractness, inclusiveness or generality
- e. Structure

Ans. A

261) Concept of food including bread, butter, milk etc. is based on—

- a. Formal properties
- b. Intrinsic properties
- c. Psychological meaningful property
- d. Functional properties

Ans. D

262) The best way of problem-solving is—

- a. Rigidity
- b. Chance
- c. Insight
- d. Trial and error

Ans. C

263) Which is not the structural attribute of the concept?

- a. Conjunctive
- b. Associative
- c. Disjunctive
- d. Relational

Ans. B

264) Religion is a—

- a. Conjunctive concept
- b. Disjunctive concept
- c. Relational concept
- d. Functional concept

Ans. B

265) Who had proposed the concept of goal gradient in problem solving?

- a. Kohler
- b. Hull
- c. Brich
- d. Wertheimer

Ans. B

266) All of the following factors influence concept formation except—

- a. Distinctiveness
- b. Manipulability of material
- c. Instructions
- d. Psychological variables

Ans. D

267) Who demonstrated that negative examples are of no use in concept learning?

- a. Smoke, 1932
- b. Hovland and Weiss, 1953
- c. Both of these
- d. None of these

Ans. C

268) Which of the following is not a method or procedure of concept learning?

- a. Method of reception
- b. Method of recitation
- c. Method of selection
- d. Both method of reception and method of selection

Ans. B

269) All of the following are kind of reasoning except—

- a. Deductive reasoning

- b. Inductive reasoning
- c. Creative reasoning
- d. Evaluative reasoning
- e. Analogical reasoning

Ans. C

270) Three of the following means same thing while one does not—

- a. Productive thinking
- b. Reproductive thinking
- c. Creative thinking
- d. Divergent thinking

Ans. B

271) A symbol has an/a—

- a. Universal meaning
- b. Innate meaning
- c. Natural meaning
- d. Arbitrary meaning

Ans. D

272) Creative thinking involves the phenomenon of—

- a. Deduction
- b. Insight
- c. Induction
- d. Decision making

Ans. B

273) Spoken language is—

- a. An ability found among all animals
- b. A species specific ability limited to Home Sapiens
- c. An ability confined only to the primates
- d. An innately determined mechanism in all animals

Ans. B

274) The concepts of taller, older, up-down, north-south etc. are examples of—

- a. Relational concepts
- b. Conjunctive concepts
- c. Disjunctive concepts
- d. Functional concepts

Ans. A

275) Most of creative thinking activity occurs during the stage of—

- a. Preparation
- b. Illumination

- c. Incubation
- d. Evaluation

Ans. C

276) The smallest unit of meaning in speech perception is—

- a. Morphemes
- b. Phonemes
- c. Words
- d. Syllables

Ans. A

277) In a typical memory experiment, participants are asked to recall stimuli in which phase?

- a. Presentation
- b. Test
- c. Material
- d. Distinction

Ans: B

278) Participants are NOT told that they will be tested on a list of words presented in an experiment.

This provides evidence of

- a. Intentional learning
- b. A practice effect
- c. Incidental learning
- d. Masked learning

Ans: C

279) A test where participants are asked to retrieve in any order stimuli previously presented is

- a. Cued recall
- b. Implicit memory
- c. Explicit memory
- d. Free recall

Ans: D

280) Participants take part in an experiment where they learn a number of words and are told that they will be tested later on what they have learned. This is a test of

- a. Explicit memory
- b. Recognition
- c. Implicit memory
- d. Interference

Ans: A

281) Storage is

- a. The stage of memory where information is interpreted and transferred
- b. The stage of memory where information is committed

- c. The stage of memory most affected by direct manipulation in experiments
- d. The stage of memory between presentation of stimuli and before test

Ans: D

282) Investigating what factors can affect memory storage can be done by

- a. Manipulating what happens before the test phase
- b. Informing people that they will be tested
- c. Providing recall cues
- d. Manipulating what happens at the presentation phase

Ans: A

283) Which is NOT typically used to test memory retrieval?

- a. Dot probe task
- b. Word stem completion
- c. Cued recall
- d. Serial position effects

Ans: A

284) With immediate testing, recall accuracy is poorest for items that occur in which position of a list?

- a. Beginning
- b. Middle
- c. End
- d. No difference

Ans: B

285) Immediately testing recall can lead to greater recall for words at the end of a list. This is

- a. Recency effect
- b. Primacy effect
- c. Serial position effect
- d. Superiority effect

Ans : A

286) The recency effect in memory retrieval can be reduced when

- a. rehearsal is prevented
- b. short- to long-term memory interference is introduced
- c. a backwards masking task is used
- d. retention interval is increased

Ans: D

287) Which authors proposed the modal model of memory?

- a. Lansdale and Baguley (2008)
- b. Tulving and Thompson (1975)

- c. Atkinson and Shiffrin (1968)
- d. Craik and Lockhart (1972)

Ans: C

- 288) The modal model of memory was challenged on the grounds that
- a. Impaired short-term memory does not disrupt long-term memory
 - b. Short-term memory has a limited capacity
 - c. Longer time in short-term memory predicts likelihood of long-term memory
 - d. Long-term memory has a limited capacity

Ans: A

289) According to levels of processing, which of the following leads to the deepest level of memory?

- a. Perceptual
- b. Semantic
- c. Associative
- d. Cue dependent

Ans: B

290) A critical issue with the 'levels of processing' account of memory is

- a. The distinction between perceptual and semantic processing
- b. It is not compatible with the modal model
- c. Determining the level of processing
- d. It does not explain how information is retrieved

Ans: C

291) Retrieval cues can improve recall because of

- a. Overlap between memories at encoding
- b. Interference or decay
- c. Traces still in short-term memory
- d. Greater storage capacity

Ans: A

292) 'Specific operations [.....] determine what is stored, and what is stored determines what retrieval cues are effective' refers to what term?

- a. Context-dependent memory
- b. Encoding specificity principle
- c. Levels of processing
- d. Forgetting function

Ans: B

293) Retroactive inhibition is a term of memory

- a. Decay

- b. Delay
- c. Retrieval
- d. Interference

Ans: D

294) Having prior memory associations that make it difficult to form new memory associations is termed

- a. Proactive inhibition
- b. Transfer appropriate processing
- c. Time-dependent decay
- d. Encoding specificity

Ans: A

295) Which of the following was proposed by Keppel (1968) to be most likely?

- a. Prior learning may interfere with new learning only when items are similar, but new learning interferes with all old learning
- b. Old learning can interfere with new learning, but new learning interferes with all old learning
- c. All forgetting is caused by non-specific proactive inhibition
- d. Old learning only interferes with new learning when encoded in the same modality

Ans: A

296) What explains the mathematical forgetting curve?

- a. Retroactive inhibition
- b. Serial position
- c. Jost's law
- d. Consolidation theory

Ans: C

297) Lansdale and Baguley (2008) predict that the probability of correct recall depends on

- a. Proportion of correct memory traces
- b. Encoding specificity
- c. Context-dependent recall
- d. Retroactive inhibition

Ans: A

298) Lansdale and Baguley (2008) argue that memory dilution occurs because

- a. Long-term memory capacity is limited
- b. The number of null traces decreases
- c. Memories become indistinct from similar memories
- d. The memory becomes less temporally distinctive

Ans: D

299) Which element was NOT found to alter accounts of the 'War of the Ghosts' story?

- a. Rationalizations
- b. Distortions
- c. Omissions
- d. Intrusions

Ans: C

300) The study of how the 'War of the Ghosts' story accounts became altered at recall was carried out by

- a. Bartlett (1932)
- b. Godden and Baddeley (1975)
- c. Postman and Phillips (1965)
- d. Eysenck (1979)

Ans: A

301) Eyewitness testimonies are an example of what kind of memory experiment?

- a. Intentional learning
- b. Context-dependent learning
- c. Incidental learning
- d. Cue-dependent learning

Ans: C

302) Which key academic is involved in the study of memory as a reconstructive process?

- a. Baddeley
- b. Eysenck
- c. Hitch
- d. Loftus

Ans: D

303) The accuracy of eyewitness testimonies can be improved with

- a. recovered memories
- b. cognitive interviews
- c. noise reduction
- d. neurofeedback

Ans: B

304) What can help improve the accuracy of eye witness testimonies?

- a. serial position
- b. context reinstatement
- c. mnemonics
- d. distributed practice

Ans: B

305) Memory can be improved when information to be learnt is

- a. organized

- b. written
- c. spoken
- d. elaborated

Ans: A

306) Which is a good method of revision:

- a. intense sessions
- b. spaced learning
- c. hour on/1 hour off
- d. late night sessions

Ans: B

307) Trying to predict your roommate is an example of:

- a. Operant thought
- b. Respondent thought
- c. A and B
- d. Neither A nor B

Ans: A

UNIT – 7

**PERSONALITY,
MOTIVATION, EMOTION,
STRESS, AND
COPING**

PERSONALITY, MOTIVATION, EMOTION, STRESS AND COPING

WHAT IS DETERMINANTS OF PERSONALITY: BIOLOGICAL AND SOCIO-CULTURAL APPROACHES TO THE STUDY OF PERSONALITY: PSYCHOANALYTICAL, NEO-FREUDIAN, SOCIAL LEARNING, TRAIT AND TYPE, COGNITIVE, HUMANISTIC, EXISTENTIAL, TRANSPERSONAL PSYCHOLOGY. OTHER THEORIES: ROTTER'S LOCUS OF CONTROL, SELIGMAN'S EXPLANATORY STYLES, KOHLBERG'S THEORY OF MORAL DEVELOPMENT?

DETERMINANTS OF PERSONALITY: BIOLOGICAL AND SOCIO-CULTURAL APPROACHES TO THE STUDY OF PERSONALITY: PSYCHOANALYTICAL, NEO-FREUDIAN, SOCIAL LEARNING, TRAIT AND TYPE, COGNITIVE, HUMANISTIC, EXISTENTIAL, TRANSPERSONAL PSYCHOLOGY. OTHER THEORIES: ROTTER'S LOCUS OF CONTROL, SELIGMAN'S EXPLANATORY STYLES, KOHLBERG'S THEORY OF MORAL DEVELOPMENT ?

Determinants of personality: Biological and socio-cultural

Man is not born a person. At birth he is an infant possessing the potentiality of becoming a person. After birth he associates with other human beings and comes under the influence of their culture. As a result of a variety of experiences and social influences he becomes a person and comes to possess a personality. The nature of personality and to show the role of culture and social experience in the formation of personality along with the problem personality disorganisation. Since socialization plays the most important part in the development of personality and we have discussed it already, the present discussion, therefore, can only be brief.

I. THE MEANING OF PERSONALITY:

The term 'personality' is derived from the Latin word 'persona' which means a mask. According to K. Young, "Personality is a patterned body of habits, traits, attitudes and ideas of an individual, as these are organised externally into roles and statuses, and as they relate internally to motivation, goals, and various aspects of selfhood." G. W. Allport defined it as "a person's pattern of habits, attitudes, and traits which determine his adjustment to his environment." According to Robert E. Park and Earnest W. Burgess, personality is "the sum and organisation of those traits which determine the role of the individual in the group." Herbert A. Bloch defined it as "the characteristic organisation of the individual's habits, attitudes, values, emotional characteristics..... which imparts consistency to the behaviour of the individual." According to Arnold W. Green, "personality is the sum of a person's values (the objects of his striving, such as ideas, prestige, power and sex) plus his non-physical traits (his habitual ways of acting and reacting)." According to Linton, personality embraces the total "organised aggregate of psychological processes and status pertaining to the individual."

Personality, as we understand it, says Maclver, "is all that an individual is and has experienced so far as this "all" can be comprehended as unity." According to Lundberg and others, "The term personality refers to the habits, attitudes, and other social trait that are characteristic of a given individual's behaviour." By personality Ogburn means "the integration of the socio psychological behaviour of the human being, represented by habits of action and feeling, attitudes and opinions." Davis regards personality "a psychic phenomenon which is neither organic nor social but an emergent from a combination of the two."

ON THE BASIS OF THESE DEFINITIONS IT MAY BE SAID THERE ARE TWO MAIN APPROACHES TO THE STUDY OF PERSONALITY:

- (1) The psychological**
- (2) THE SOCIOLOGICAL.**

Although there is also a third approach, the biological approach, but the biological definition of personality which comprehends only the bio-physical characteristics of the individual organism is inadequate. The psychological approach considers personality as a certain style peculiar to the individual. This style is determined by the characteristic organisation of mental trends, complexes, emotions and sentiments. The psychological approach enables us to understand the phenomena of personality disorganisation and the role of wishes, of mental conflict, and of repression and sublimation in the growth of personality. The sociological approach considers personality in terms of the status of the individual in the group, in terms of his own conception of his role in the group of which he is a member. What others think of us plays a large part in the formation of our personality. Thus personality is the sum of the ideas, attitudes and values of a person which determine his role in society and form an integral part of his character. Personality is acquired by the individual as a result of his participation in group life. As a member of the group he learns certain behaviour systems and symbolic skills which determine his ideas, attitudes and social values.

TO SUM UP WE WOULD SAY THAT:

- (i) Personality is not related to bodily structure alone. It includes both structure and dynamics
- (ii) Personality is an indivisible unit.
- (iii) Personality is neither good nor bad.
- (iv) Personality is not a mysterious phenomenon.
- (v) Every personality is unique.
- (vi) Personality refers to persistent qualities of the individual. It expresses consistency and regularly.
- (vii) Personality is acquired.
- (viii) Personality is influenced by social interaction. It is defined in terms of behaviour.

THE TYPES OF PERSONALITY:

Some attempts have been made to classify personalities into types. In the 5th century B. C., the Greek physician Hippocrates divided human beings into four types: the sanguine, the melancholic, the choleric, and the phlegmatic. The Swiss psychoanalyst, Carl Gustav Jung, distinguished between two main types, the introvert and the extrovert. The introvert is preoccupied with his own self; the extrovert with things outside self. In these two types there is a third type—the ambiverts who are neither the one nor the other but vacillate between the two. The majority of people are ambiverts. According to Ernest Kretschmer the German psychiatrist, the extrovert personality is a stout person while the introvert one is a tall and slender person. The first type of persons he called “pyknic” the second type he called “leptosomic” W.I. Thomas and Florian Znaniecki distinguished among the Bohemian, the Philistine, and the Creative.

II. DETERMINANTS OF PERSONALITY:

Personality is a result of the combination of four factors, i.e., physical environment, heredity, culture, and particular experiences. Here we discuss each factor determining personality separately.

PERSONALITY AND ENVIRONMENT:

Above we described the influence of physical environment on culture and pointed out that geographical environment sometimes determines cultural variability. That the Eskimos have a culture different from that of the Indians is due to the fact that the former have a geography different from the latter. Man comes to form ideas and attitudes according to the physical environment he lives in. To the extent that the physical environment determines cultural development and to the extent, that culture in turn determines personality, a relationship between personality and environment becomes clear. Some two thousand years ago, Aristotle claimed that people living in Northern Europe were owing to a cold climate full of spirit but lacking in intelligence and skill. The natives of Asia, on the other hand, are intelligent and inventive but lack in spirit, and are, therefore, slaves.

Montesquieu, in the eighteenth century, claimed that the bravery of those blessed by a cold climate enables them to maintain their liberties. Great heat enervates courage while cold causes a certain vigour of body and mind. At high temperatures, it is said there is disinclination to work and so civilizations have grown up where the temperatures have been average near or below the optimum. The people of mountains as well as deserts are usually bold, hard and powerful. Huntington's discussion of the effects of physical environment on man's attitudes and mental make-up is very exhaustive. However, as told previously, the physical conditions are more permissive and limiting factors than causative factors. They set the limits within which personality can develop.

Thus, climate and topography determine to a great extent the physical and mental traits of a people, but it cannot be said that they alone determine human behaviour. Most kinds of personality are found in every kind of culture. The fact remains that civilizations have appeared in regions of widely different climate and topography. Christianity knows no climate belts. Peoples are monogamous in high altitudes and flat lands, under tropical temperate and arctic conditions. Men's attitudes and ideas change even when no conceivable geographic change has occurred. Proponents of geographic determinism oversimplify the human personality and so their interpretations are to be accepted only after close scrutiny.

HEREDITY AND PERSONALITY

Heredity is another factor determining human personality. Some of the similarities in man's personality are said to be due to his common heredity. Every human group inherits the same general set of biological needs and capacities. These common needs and capacities explain some of our similarities in personality. Man originates from the union of male and female germ cells into a single cell which is formed at the moment of conception. He tends to resemble his parents in physical appearance and intelligence. The nervous system, the organic drives and the ductless glands have a great bearing upon personality. They determine whether an individual will be vigorous or feeble, energetic or lethargic, idiot or intelligent, coward or courageous.

A man with a good physical structure and health generally possess an attractive personality. A man of poor health, pigmy size and ugly physical features develops inferiority complex. The growth of his personality is checked. Rejected and hated by the society he may turn out to be a thief, dacoit, or drunkard. It is also probable that he may become a leader, or a genius like Socrates and Napoleon. Likewise the nervous system and glandular system may affect the personality of an individual. The nervous system affects the intelligence and talent of the individual. The hormones affect the growth of personality. Too many or too less of hormones are harmful. Some men are over-patient, overzealous, overactive and overexcited while others are lazy, inactive, and weak. The reason may

be secretion of more hormones in the first case and less hormones in the latter case. For a normal personality there should be a balanced secretion of hormones. Heredity may affect personality in another way, i.e., indirectly. If boys in a society prefer slim girls as their companion, such girls will receive greater attention of the society providing them thereby more opportunities to develop their personality. According to Allport, Gordon, W. no feature of personality is devoid of hereditary influence. However, heredity does not mould human personality alone and unaided. "For the present, we can only assume that there are - genes for normal personality traits just as there are genes for other aspects of human make-up and functioning. Where in members of the same family, in a similar environment, we can see great differences in personality, we may ascribe these in part at least to differences in gene contributions.

We can also guess that some of the family similarities in personality are genetically influenced. But we are still a long way from identifying specific 'personality' genes, gauging their effects or hazarding predictions as to what the personality of a given child will be on the basis of what we know about its parents." However, according to a news report (Times of India, Jan. 3, 1996) the scientists have identified a gene which influences impulsiveness, excitability and extravagance. In short, heredity can never be considered as charting a fixed and definite course of anyone's personality. At the best, what anyone inherits are the potentialities for a wide range of personalities, the precise form into which a personality will "jell" being determined by circumstances. Ogburn and Nimkoff write, "It would be an error to hold, as' endocrine enthusiasts do, that the glands determine the whole personality, include rich things, as one's opinions, one's habits, and one's skills." It is possible to over-activate or under activate some of these kinds by injecting certain kinds of hormones and thereby affect human personality. In other words, it may be said that the available evidence does not support the dogmatic view that personality is biologically transmitted.

Of course, there are some traits which seem to be more directly affected by heredity than others. Manual skills, intelligence and sensory discriminations are some of the abilities which appear more highly developed in some family lines than others. But other traits such as one's beliefs, loyalties, prejudices and manners are for the most part the result of training and experience. Heredity only furnishes the materials out of which experience will mould the personality. Experience determines the way these materials will be used. An individual may be energetic because of his heredity, but whether he is active on his own belief or on behalf of others is a matter of his training.

Whether he exerts himself in making money or in scholarly activity is also dependent upon his bringing. If personality is a direct consequence of heredity tendencies or traits then all the sons and daughters of the same parents brought up in the same environment should have identical personalities or at least personalities that are very much alike. But investigation shows that even at the tender age of three or four years they show quite distinct personalities. The new born human being is, to use the phrase of Koenig, Hopper and Gross, a "candidate for personality." It is, therefore, clear that an individual's heredity alone would not enable us to predict his traits and values.

PERSONALITY AND CULTURE

There can be little doubt that culture largely determines the types of personality that will predominate in the particular group. According to some thinkers, personality is the subjective aspect of culture. They regard personality and culture as two sides of the same coin. Spiro has observed, 'The development of personality and the acquisition of culture are not different processes, but one and the same learning process.' Personality is an individual aspect of culture, while culture is a

collective aspect of personality." Each culture produces its special type or types of personality. In 1937 the anthropologist Ralph Linton and the psychoanalyst Abram Kardinar began a series of joint explorations of the relationship between culture and personality by subjecting to minutestudy reports of several primitive societies and one modern American village. Their studies have demonstrated that each culture tends to create and is supported by a "basic personality type." A given cultural environment sets its participant members off from other human beings operating under different cultural environments. According to Frank, 'culture is a coercive influence dominating the individual and moulding his personality by virtue of the ideas, conceptions and beliefs which had brought to bear on him through communal life."

The culture provides the raw material of which the individual makes his life. The traditions, customs, mores, religion, institutions, moral and social standards of a group affect the personality of the group members. From the moment of birth, the child is treated in ways which shape his personality. Every culture exerts a series of general influences upon the individuals who grow up under it Ogburn as we noted above, divided culture into "material" and "non-material." According to him, both material and non-material culture have a bearing on personality. As for the former he provides examples of the influence of plumbing on the formation of habits and attitudes favourable to cleanliness and the relation of time-pieces to punctuality. The American Indians who have no clocks or watches in their culture have little notion of keeping appointments with any exactness. According to him, they have no sense of time. The personality of an American Indian differs from that of a white man in the matter of punctuality and this is because of differences in their culture. Similarly, some cultures greedy value cleanliness as witnessed by the saying: "Cleanliness is next to godliness." This trait of cleanliness is greatly encouraged by the technology of plumbing and other inventions that are found with it.

The Eskimos are dirty because they have to hang a bag of snow down their backs to melt it in order to get water. A man who has just to turn on a tap of water will naturally be more clean than an Eskimo. Cleanliness, therefore, is a matter not of heredity but of the type of culture. As for the connection between the non-material culture and personality, language affords an instructive example. We know that one of the principal differences between man and animals is that he alone possesses speech. Language can be learnt only in society. People who cannot speak exhibit warped personality. Since language is the essential medium through which the individual obtains his information and his attitudes, therefore, it is the principal vehicle for the development of personality. Moreover, speech itself becomes a trait of personality.

The coarse voice of woodcutter can be readily distinguished from the hushed tones of a man. The short, crisp, guttural speech of the German seems to be part of his personality, as does the fluid, flowing voluble speech of the Spaniard. Movements of the hands and shoulders in speech are regarded as part of the very core of the personalities of Italians and Jews. The Jews use their gestures for emphasis only, while Italians depend upon them to convey part of the meaning. Another illustration of the influence of culture on personality is the relationship of men and women. In the earlier period when farming was the principal business, women generally had no occupations outside the home, and naturally, therefore, they were economically dependent upon their fathers or husbands. Obedience was a natural consequence of such conditions. But today hundreds of women work outside the homes and earn salaries.

They enjoy equal rights with men and are not so dependent upon them as they were in the past.

Attitude of independence instead of obedience has today become a trait of women's personality. With the growing realisation of the importance of culture for personality, sociologists have recently made attempts to identify the factors in particular cultures which give a distinctive stamp to the individuals within the group. Ruth Benedict analyzed the cultures of three primitive tribes and found that cultures may be divided into two major types—The Apollonian and the Dionysian. The Apollonian type is characterised by restraint, even temperances, moderation and co-operativeness, whereas the Dionysian type is marked by emotionalism, excess, pursuit of prestige, individualism and competitiveness. The Zuni culture I classified as Appollonian, while the Kwakiuti and Dobuans as Dionysian.

The personality of the Hindus in India differs greatly from that of Englishmen. Why ? The answer is 'a different Hindu culture'. The Hindu culture lays emphasis not on material and worldly things, but on things spiritual and religious. In every Hindu family there is a religious environment. The mother gets up early in the morning, takes bath and spends an hour in meditation. When the children get up, they go and touch the feet of their parents and bow before the family gods or goddesses. The Hindu child from the very birthbegins to acquire a religious and philosophical personality built on the "inner life." From the various illustrations cited so far it is thus clear that culture greatly moulds personality. The individual ideas and behaviour are largely the results of cultural conditioning. There is a great difference of ideas between the Hindu devotee immersed in religion and the Russian Communist who thoroughly rejects it.

However, it should not be concluded that culture is a massive die that shapes all who come under it with an identical pattern. All the people of a given culture are not of one cast. Personality traits differ within any culture, some people in any culture are more aggressive than others, some are more submissive, kind and competitive. Personality is not totally determined by culture, even though no personality escapes its influence. It is only one determinant among others. Ruth Benedict writes, "No anthropologist with a background of experiences of other cultures has ever believed that individuals were automatons, mechanically carrying out the decrees of their civilizations No culture yet observed has been able to eradicate the difference inthe temperaments of the persons who compose it. It is always a give and take affair." Linton classified cultural influence into the universals, specialities and alternatives and came to the conclusion that culture makes for uniformity of personality only through the universals and since universals are few in number as compared with specialities and alternatives, the effect of culture is to make for variety as well as uniformity.

PERSONALITY AND PARTICULAR EXPERIENCES:

Personality is also determined by another factor, namely, the particular and unique experiences. There are two types ofexperiences one, those that stem from continuous association with one's group, second, those that arise suddenly and are not likely to recur. The type of people who meet the child daily has a major influence on his personality. The personality of parents does moreto affect a child's personality. If the parents are kind, tolerant of boyish pranks, interested in athletics and anxious to encourage their child's separate interests the child will have a different experience and there shall be different influence on his personality than the one when the parents are unkind, quick tempered and arbitrary. In the home is fashioned the style of personality that will by and large characterise the individual throughout his life.

Social rituals,' ranging from table manners to getting along with others, are consciously inculcated in the child by parents. The child picks up the language of his parents. Problems of psychological

and emotional adjustments arise and are solved appropriately by each child in terms of the cultural values and standards of the family. The family set up tends to bring the child into contact with his play-mates and teachers. What his play-game members are, and his school teachers are will also determine his personality development. Group influences are relatively greater in early childhood. This is the period when the relationships of the child with his mother, father and siblings affect profoundly the organisation of his drives and emotions, the deeper and unconscious aspects of his personality.

A certain degree of maturation is needed before the child can understand the adult norms. The basic personality structure that is formed during this period is difficult to change. Whether a person becomes a leader, a coward, an imitator? whether he feels inferior or superior, whether he becomes altruistic or egoistic depends upon the kind of interaction he has with others. Group interaction moulds his personality. Away from the group he may become insane or develop queer attitudes. As a child grows he develops wish for response and wish for recognition. To his organic needs are added what are called 'sociogenic' needs which are highly important motivating forces in personality. How the idea of self develops in the child is an important study. The self does not exist at birth but begins to arise as the child learns something of the world of sensation about him.

He comes to learn of what belongs to him and takes pride in his possessions. He learns that parts of his body belong to him. He becomes acquainted with his name and paternity and comes to distinguish himself from others. The praise and blame he receives from others account in large measure for his conduct. The development of self leads to the growth of conscience and ego. Our view of self conception is usually based on the opinion of others about us. It does not, however, mean that we value all opinions about our conduct equally. We attach importance only to the opinions of those whom we consider for one reason or the other significant than others. Our parents are usually most significant than others since they are the ones who are intimately related to us and have greatest power than others over us especially during the early years of life. In short, our early experiences are very important in the formation of our personality. It is in early life that the foundations of personality are laid.

Why are the children brought up in the same family differ from one another in their personality, even though they have had the same experiences? The point is that they have not had the same experiences. Some experiences are similar while others are different. Each child enters a different family unit. One is the first born, he is the only child until the arrival of the second. The parents do not treat all their children exactly alike. The children enter different play groups, have different teachers and meet different incidents. They do not share all incidents and experiences. Each person's experience is unique as no body else perfectly duplicates it. Thus, each child has unique experiences exactly duplicated by no one and, therefore, grows a different personality.

Sometimes a sudden experience leaves an abiding influence upon the personality of an individual. Thus a small child may get frightened at the view of a bloody accident, and even after the accident he may be obsessed of the horror of fear. Sometimes girl's experience with a rapist may condemn her to a life of sexual maladjustment. A book may not uneaten challenge a man to renounce the world and seek God. If a man meets an accident which cripples or weakens him, he may come to entertain the feelings of inadequacy. Lord Buddha is said to have been led to renunciation by the sight of a funeral procession. In this way experiences also determine one's personality. However, it may be noted that one's own personality that one has acquired at any moment will in

part determine how the experiences influence his pre-acquired personality. Thus a child who is robust, outgoing, athletic would find his parents in the first case a model for behaviour, a model that would deepen the already apparent personality traits. But if the child is shy, retiring and bookish he may find such parents' personality distasteful and intensify the opposed personality trends already apparent. It may also be referred that personality is a matter of social situations. It has been shown by social researchers that a person may show honesty in one situation and not in another. The same is true for other personality traits also. Personality traits tend to be specific responses to particular situations rather than general behaviour patterns. It is a dynamic unity with a creative potential. Heredity, physical environment, culture and particular experiences are thus the four factors that explain personality—its formation, development and maintenance. Beyond the joint influence of these factors, however, the relative contribution of each factor to personality varies with the characteristic or personality process involved and, perhaps, with the individual concerned.

Genetic or hereditary factors may be more critical for some personality characteristics, while environmental factors, (cultural, financial), may be more important for others. Furthermore, for any one characteristic, the relative contribution of one or another factor may vary from person to person. Also there is no way yet known to measure the effect of each factor or to state how the factors combine to produce a given result. The behaviour of a juvenile delinquent is affected by his heredity and by his home life. But how much is contributed by each factor, cannot be measured in exact terms.

III. PERSONALITY DISORGANIZATION:

Society everywhere demands from its members conformity to its folkways and mores, to its values and standards. But often the individual fails to meet the requirements of the society in which he lives. As a result, he develops personality problems and becomes disorganised. Such a person is considered a mental case, a case of mental derangement or abnormality. The peculiarity about him is that his behaviour is unpredictable. He differs so systematically and persistently from the normative assumptions and mental habits of others that they cannot understand the motivations and hence do not know what to expect. He remains socially isolated because in his ease there is breakdown of communicative understanding.

Personality disorganisation, therefore, means that the individual is out of adjustment with society who has failed to organize the chief goals of his life into an integrated whole so as to achieve unity of the self. Personality disorganisation may take the milder or serious forms of mental disorder such as neuroses or psychoses. In addition to mentally disorganized persons there are other examples of personality disorganisation in the alcoholics, criminals, gamblers, prostitutes and drug addicts who are mentally normal but socially abnormal.

CAUSES OF PERSONALITY DISORGANISATION:

The failure of an individual to adjust himself to society may be due to the factors inherent in the individual or in the society in which he lives. He may have been born with a mental disability which prevents his integration into society. Organism is, no doubt, a necessary condition for an integrated personality; but it is society which is far more frequently responsible for personality disorganisation. Moreover, in sociology our interest is only in the social aspects of human behaviour and hence to the social causes of personality disorganisation. Our society is very complex, competitive and contradictory. It makes excessive demands upon the individual. Different groups with different moral standards and different cultural backgrounds create different notions of what is right and what is

wrong. In the midst of these varying notions the individual gets confused. He fails to find out the right way of social behaviour and relapses into abnormal behaviour. Secondly, in the modern society man's desires have increased manifold. The advertising has stimulated his desires which often cannot be satisfied. If the desires remain unsatisfied frustration naturally results. Repeated frustration tends to produce a generalized lack of confidence in one's ability to achieve any end, and a generalized conception of oneself as less efficient and less worthy than others. Karen Horney has pointed out that neurotic person continually stands in his own way. His lack of order in his ends makes it hard for him to achieve any particular end. Thirdly, the rapid changes in society create new ideas, set up new standards while the old ones still persist. All this leaves the individual bewildered and helpless in coping with the new situation in which he finds himself. Under these circumstances the individual may become a victim of mental disorder, commit suicide or become a criminal. Block distinguished five paths which an individual may pursue when he is caught in a situation of profound social change to which he has difficulty in adjusting. He may –

- (i) Return to the old forms of behaviour, or
- (ii) Create his own way of behaviour and seek to have it adopted by society, or
- (iii) Attack the existing social order through various types of antisocial behaviour, such as crime or theft or
- (iv) Take refuge in a retreat from society, or
- (v) Escape from life by committing suicide.

CULTURE AND PERSONALITY DISORGANISATION:

There is a close relation between culture and personality disorganisation. Every human being in modern culture suffers from inner conflicts. Though some mental disorders may be of an organic or constitutional nature, but most mental disorders arise from, inner conflicts and are created by the incompatible values of Culture. Davis writes, "So far as mental disorder is concerned the significant question is..... Whether the social system..... is unified by a nucleus of common values When the structure embraces conflicting principles of social organisation based on the incompatible values, psychic conflicts inevitably result." The stresses and strains imposed by culture sometimes seem to be too heavy to bear and lead to mental disorders. According to Ogburn and Nimkoff, "Cultures have their own characteristic mental disorders reflecting distinctive cultural influences." Every culture embodies cultural categories and values. If the individual fails to make good within the framework of cultural categories and values, the result is personal disorganisation. Moreover, there are conflicts and contradictions in every culture. Not only different persons hold different attitudes but the same individual holds contradictory and conflicting attitudes. Even within the family there may be incompatible values and loyalties. The girl's father may be a non-vegetarian, a smoker and strict materialist.

But her mother may be a vegetarian, teetotaler and a believer in spiritualism. Her brother may be a strong opponent of women's rights and a staunch nationalist whereas her sister may be an ardent advocate of women's rights and an internationalist. Her uncle may be a lover of art and of things medieval while her aunt may scorn art and scoff at everything that was said and thought before the nineteenth century. Her grandmother may be given to idol-worship while her grand- father may be an atheist. Add to it the different values held by her friends, her teachers, and her favourite authors and the situation becomes appalling. In short, it may be said that every culture is heterogeneous presenting incompatible values. It is a house divided against itself In the temple we exalt spiritualism, but in the market we glorify materialism. We profess co-operation but actually practise cut

throatcompetition. We swear by rights and yet practise untouchability. These inner contradictions arise from the myriads of possible wishes of individuals and scores of alternative ways of satisfying some of these wishes. Hence personality disorganisation is bound to occur in every culture. Many psychiatrists believe that it is during the main period of socialization, i.e., during childhood and in the main socialization groups such as family, play groups and school that the basis is laid for the personality disorganisation. Inconsistent discipline by people who themselves are disintegrated tends to produce cases of personal disorganisation. The child may fail to form habits or acquire attitudes which may protect him from going to pieces in face of problems which another person might easily solve.

PERSONAL DISORGANISATION IN PRIMITIVE SOCIETIES:

Primitive societies are said to be comparatively free of disorganized individual. Thus Ellis-worth Faris found an almost complete absence of psychoses among the Congo Bantu. Not a single member of the staff of four hospitals visited could tell Faris of a single case of split personality. Similarly, Ruth Benedict found it hard to explain the meaning of suicide to the peaceful Zuni Indians, the word was unfamiliar to them. The absence of personality disorganisation to a marked degree in the primitive societies is due to the fact that they are better integrated societies. The degree of personality disorganisation depends upon the degree of society's integration rather than upon the number of regulatory agencies and the extent of social control. In modern society man is subject to a number of regulatory agencies, every aspect of his life stands controlled today by one or the other agency.

Social control in modern society though less effective is nevertheless more prevailing. The volume of state legislation having gone very high, the individual finds himself under the control of one regulation or the other at every step. Yet in spite of such an extending social control and there being numerous formal regulatory agencies the degree of personal disorganisation in modern society is greater.

In the simple folk society, man may not have possessed a high degree of freedom, yet he was free of the many of the uncertainties and insecurities which beset modern 'civilized' man. The modern society is a "mass society" wherein despite the greater interdependence, individuals have been alienated from one another.

The individual has lost a coherent sense of self. He feels disillusioned about his own identity and detached from the goals valued in society. He is confused about what he ought to believe and feels that he cannot control the events which impinge upon him. Modern man is an impoverished "thing." Thus what is important in causing or preventing personal disorganisation is not so much the extent of social control or the number of regulatory agencies, but the degree of the society's disintegration. If the life of an individual is well-rounded, if every part of his life—economic, social, religious and aesthetic—is bound together into a significant whole in respect to which he is far from a passive pawn and if he plays a moulding role in the mechanism of this culture, he will seldom suffer from personal disorganisation.

Individuals in primitive societies, as many anthropological studies show, become seriously disorganized when their society and culture come into close contact with western civilization and their system of folkways and mores breaks down. In such a situation the individual slips out of "the warm embrace of a culture into the cold air of fragmentary existence."

There is a close relationship between the lack of integration of a society and personal disorganisation. Thomas and Znaniecki attributed personal disorganisation in the Polish community in the

United States to the complex urban civilization as the peasant community in Poland suffered few problems of personality disorganisation. The transplantation of individuals from a simpler life to a complex urban civilization opens them to the greater risks of personality disorganisation.

That is why that urban people suffer more from personality disorganisation than the rural people.

Mandel Sherman and Thomas R. Henry, the two American psychologists after having studied five mountain communities discovered that the one farthest removed from the influence of civilization had the most stable personalities than the one in closest contact with modern urban life.

Similarly, a number of psychologists, psychiatrists and psychoanalysts agreeing with the point of view of sociologists and anthropologists referred to society as to? Main source of personality problems. In short, the complexity of chosen society and its accompanying problems are the major Causes of personality disorganisation. This also emphasizes the production that personality is in the main a societal product

However, this is not the whole story, for there are obviously organic factors in addition. The organic side of personality disorganisation cannot be dispensed with altogether. True, the organism is a necessary condition in personality integration and disintegration; however, there are strains that nobody, no matter how well balanced, can withstand. Everyone has his breaking point. It is a question of how a man takes the situation. So the determining factor is the situation. The situational factors should not be underemphasized and the organic factors overemphasized when considering the problem of personality disorganisation.

PERSONALITY REORGANISATION:

The cases of personality disorganisation have increased in modern society, there is no denying the fact. The social scientists are busy in analyzing the causes and finding out the remedies. There is, however, still a difference of opinion as to the best way to proceed.

Those who regard organic factors as the main determinants of social behaviour seek to improve it through eugenic means of one kind or another. The psychologists, psychiatrists and psychoanalysts try to find the cause and remedy in the individual alone as if he were living in a vacuum.

BIOLOGICAL PERSONALITY

How much of our personality is in-born and biological, and how much is influenced by the environment and culture we are raised in? Psychologists who favor the biological approach believe that inherited predispositions as well as physiological processes can be used to explain differences in our personalities (Burger, 2008).

In the field of behavioral genetics, the Minnesota Study of Twins Reared Apart—a well-known study of the genetic basis for personality—conducted research with twins from 1979 to 1999. In studying 350 pairs of twins, including pairs of identical and fraternal twins reared together and apart, researchers found that identical twins, whether raised together or apart, have very similar personalities (Bouchard, 1994; Bouchard, Lykken, McGue, Segal, & Tellegen, 1990; Segal, 2012). These findings suggest the heritability of some personality traits. **Heritability** refers to the proportion of difference among people that is attributed to genetics.

Some of the traits that the study reported as having more than a 0.50 heritability ratio include leadership, obedience to authority, a sense of well-being, alienation, resistance to stress, and fearfulness. The implication is that some aspects of our personalities are largely controlled by genetics; however, it's important to point out that traits are not determined by a single gene, but by a combination of many genes, as well as by epigenetic factors that control

whether the genes are expressed.

TEMPERAMENT

Most contemporary psychologists believe temperament has a biological basis due to its appearance very early in our lives (Rothbart, 2011). As you learned when you studied lifespan development, Thomas and Chess (1977) found that babies could be categorized into one of three temperaments: easy, difficult, or slow to warm up. However, environmental factors (family interactions, for example) and maturation can affect the ways in which children's personalities are expressed (Carter et al., 2008). Research suggests that there are two dimensions of our temperament that are important parts of our adult personality—reactivity and self-regulation (Rothbart, Ahadi, & Evans, 2000). Reactivity refers to how we respond to new or challenging environmental stimuli; self-regulation refers to our ability to control that response (Rothbart & Derryberry, 1981; Rothbart, Sheese, Rueda, & Posner, 2011). For example, one person may immediately respond to new stimuli with a high level of anxiety, while another barely notices it.

CONNECT THE CONCEPTS: BODY TYPE AND TEMPERAMENT

Is there an association between your body type and your temperament? The constitutional perspective, which examines the relationship between the structure of the human body and behavior, seeks to answer this question (Genovese, 2008). The first comprehensive system of constitutional psychology was proposed by American psychologist William H. Sheldon (1940, 1942). He believed that your body type can be linked to your personality. Sheldon's life's work was spent observing human bodies and temperaments. Based on his observations and interviews of hundreds of people, he proposed three body/personality types, which he called somatotypes.

The three somatotypes are ectomorphs, endomorphs, and mesomorphs. Ectomorphs are thin with a small bone structure and very little fat on their bodies. According to Sheldon, the ectomorph personality is anxious, self-conscious, artistic, thoughtful, quiet, and private. They enjoy intellectual stimulation and feel uncomfortable in social situations. Actors Adrien Brody and Nicole Kidman would be characterized as ectomorphs. Endomorphs are the opposite of ectomorphs. Endomorphs have narrow shoulders and wide hips, and carry extra fat on their round bodies. Sheldon described endomorphs as being relaxed, comfortable, good-humored, even-tempered, sociable, and tolerant. Endomorphs enjoy affection and detest disapproval.

Queen Latifah and Jack Black would be considered endomorphs. The third somatotype is the mesomorph. This body type falls between the ectomorph and the endomorph. Mesomorphs have large bone structure, well-defined muscles, broad shoulders, narrow waists, and attractive, strong bodies. According to Sheldon, mesomorphs are adventurous, assertive, competitive, and fearless. They are curious and enjoy trying new things, but can also be obnoxious and aggressive. Channing Tatum and Scarlett Johansson would likely be mesomorphs.

SOCIO-CULTURAL PERSONALITY

Psychology has been slow to embrace the value of cross-cultural research (see Lee et al., 1999; Sue, 1999; Triandis & Suh, 2002). This concern is by no means new. In 1936, Ralph Linton wrote that "different societies seem to show differences in the relative frequency of occurrence of the various psychological types" (pg. 484), and in 1973, Robert LeVine suggested that "this is a moment at which even those who are skeptical about the value of culture and personality study might consider stretching their curiosity in this direction" (pg. ix) Throughout this textbook we will

examine a number of theorists who emphasized studying cultural differences as a significant part of their careers and, often, their personality theories as well.

However, it remains true that cross-cultural studies in psychology have only recently moved closer to the mainstream of psychological research and clinical practice. As of 2002, the American Psychological Association has “Guidelines on Multicultural Education, Training, Research, Practice, and Organizational Change for Psychologists” (www.apa.org/pi/multiculturalguidelines/homepage.html). To cite just a few examples of the range of current interest in cross-cultural psychology, we now have a Dictionary of Multicultural Psychology (Hall, 2005) and books on the relationships between culture, mental illness, and counseling (Axelson, 1999; Castillo, 1997), as well as on the relationships between race, class, and the social and personal development of women (Jordan, 1997b; Pack-Brown, Whittington-Clark, & Parker, 1998). There are also major new texts on African American psychology (Belgrave & Allison, 2006) and racism, prejudice, and discrimination in America (Miller & Garran, 2008; Whitley & Kite, 2006).

The fact that studying cross-cultural factors in personality has always been present in the careers and theories of certain individuals, while not becoming a mainstream focus of attention, is more than just an historical curiosity. By emphasizing biological factors (i.e., genetics), Freud’s theory did not allow for cultural differences. Behavioral theorists emphasized environmental factors, a seemingly cultural approach, but they did not allow themselves to address factors beyond immediate scientific control.

Thus, they defined with great precision the role of reinforcement, punishment, discriminative stimuli, etc., while not allowing for the richness of cognition and cultural experiences. Likewise, cognitive theorists clung to the scientific approach of the behaviorists, rather than embracing the potential of sociocultural perspectives.

In other words, because strict Freudian theorists, as well as behavioral and cognitive theorists, believed that their theories applied to all people equally, they typically chose not to address differences between people. Thus, those who wished to bring sociocultural perspectives on the development of personality into the field of personality theory faced a degree of direct opposition. And yet, their perseverance is now being fulfilled.

CULTURAL STUDIES IN THE FIELD OF PSYCHOLOGY

Since the 1990s, a number of general books on psychology and culture have been available (e.g., Brislin, 2000; Lonner & Malpass, 1994; Matsumoto, 1994, 1997; Matsumoto & Juang, 2004; Okun, Fried, & Okun, 1999; Price & Crapo, 2002; Segall et al., 1990). Although all of these books address topics such as the “self” and person-perception, and other various aspects of personality, only a few of them devote an actual chapter or section to the topic of personality itself (Matsumoto & Juang, 2004; Price & Crapo, 2002; Segall et al., 1990), and in each case the topics are fairly specific. There is, however, some older literature on the relationships between culture, society, and personality. We will examine that research in the second part of this section. First, let us examine some of the general principles of incorporating cross-cultural perspectives into the study of personality.

THE CHALLENGES OF CULTURAL RESEARCH

The first problem faced by those who are interested in the study of culture and personality is the question: what exactly is to be studied? At the most basic level, there are two types of research.

Cross-cultural research typically refers to either parallel studies being conducted in different cultures, or similar concepts being studied in different cultures. In contrast, **intercultural research** is the study of individuals of different cultures interacting with one another (Brislin, 2000; Matsumoto & Juang, 2004; Segall et al., 1990). As you will see in later chapters, some personality theorists consider interpersonal relationships to be the only true domain for studying individual personality. While most of the research done in psychology has been cross-cultural, as the world becomes more and more of a global community the opportunity for, and importance of, intercultural research is rapidly expanding.

Another fundamental problem with the study of culture is our attention to it, or rather, the lack of attention we pay to something that is so deeply ingrained in our daily lives. Richard Brislin suggests the following exercise: write down three answers for someone from a different culture who asks "What should I know about your culture so that we can understand each other better?" (pg. 10; Brislin, 2000). Because we simply take our cultural influences for granted, it proves quite difficult for us to think that they need to be identified or explained. For example, freedom of speech is a cherished right in America. Consequently, we often speak our minds. If I am upset about some new college policy, I might say very negative things about the administration of our college, even about particular administrators.

It does not mean I intend to be disrespectful, or that I dislike those individuals, or that I won't say positive things about them when I agree with the next new policy. It is simply an expression of one of the great freedoms in our society: the right to speak out. However, someone from a different culture, particularly a collectivist culture, might be shocked at my apparent disrespect toward my "superiors." The next important issue is the difference between **emic** and **etic** tasks or behaviors. Simply put, emic tasks are those that are familiar to the members of a given culture, whereas etic tasks are common to all cultures.

In an elegantly simple, yet revealing study, Irwin, Schafer, & Feiden (1974) demonstrated these phenomena in two cultures: American undergraduates and Mano rice farmers (from Liberia). The American college students were consistently better at performing the Wisconsin Card Sort, a well-known psychological test measuring cognitive reasoning skills, which relies on geometric shapes and color.

The Mano farmers, however, were consistently better at sorting different categories of rice. Thus, the ability to sort items into categories appears to be an etic task (most likely common to all humans, regardless of culture), whereas the more specific abilities to sort by geometry and color (common to American college students) or type of rice grain (common to Mano farmers in Liberia) is an emic task that requires familiarity. Thus, if we made a judgment about the Mano farmers' cognitive abilities based on the Wisconsin Card Sort, we would clearly be making a mistake in comparing them to Americans, due to the unfamiliarity of the particular task.

Another important aspect of cross-cultural research, which may involve applying our understanding of etics and emics, is the issue of **equivalence**. Is a concept being studied actually equivalent in different cultures? In other words, does a concept mean the same thing in different cultures, is the comparison valid? For example, an etic related to intelligence is the ability to solve problems.

So how might we compare different cultural groups? Would the speed with which they solve a problem make sense as a measure of intelligence? Such an answer would be emic, and therefore valid, in America (where we typically value independence and competition). However, among the Baganda of Uganda, slow and careful thought is the emic. Among the Chi-Chewa of Zambia, the emic is responsibility to the community, i.e., solving the problem in order to best get along with other people.

Thus, the speed at which people solve problems is conceptually equivalent, since it is the way in which people in each culture identify those individuals who are considered intelligent (Brislin, 2000). However, we cannot compare the actual speed of reporting a solution to others, as this is viewed quite differently in each culture.

One particular type of equivalence that raises a very interesting problem is that of **translation equivalence**. Psychologists often want to use tests developed in their own language with people of a different culture who speak a different language. Translating a test from one language to another can be a difficult task. The best way to assess translation equivalence is through **back translation**. In this procedure, one person translates the test, or survey, into the foreign language, and then a different person translates the foreign language test back into the original language. The original test can then be compared to the back translated test to see how closely they are worded.

Ideally they would be identical, but this is seldom the case. To give you a simple example, when I was in graduate school, we had a student from Taiwan join our research group. One day I asked her to translate my last name, Kelland, into a Chinese character. When she had done that, I asked her how she would translate that particular Chinese character into English for someone who was not Chinese. She translated the character as Kwang. Despite the first letter, I hardly consider Kwang to be a reasonable translation of Kelland, but she didn't seem to think of this as much of a problem (perhaps revealing another cultural difference!). When the process of back translation is used successfully, which may involve working back and forth with the translations, it has the effect of **decentering** the test from the original language. Specifically, that means that the test should be free of any culturally emic references or aspects that interfere with the translation equivalence of the different versions of the test (Brislin, 2000; Matsumoto & Juang, 2004).

While the list of issues pertaining to cross-cultural research goes on, let's consider just two more specific issues: **cultural flexibility** and **cultural response sets**. Cultural flexibility refers to how individuals are willing to change, or adapt, in situations in which they know there are cultural differences. For example, American businesspeople can stand about 15 minutes of small talk before getting down to business. Their Japanese counterparts, in contrast, consider it important to get to know their business partners, and they are comfortable with hours of conversation about a variety of topics. This would, of course, be an important consideration for anyone studying the relationship between individual personality and success in business situations in this intercultural setting.

Cultural response sets refer to how a given culture typically responds. If a given culture is more reserved, and they are asked to rate the importance of some value in comparison to how a more open culture rates that value, a difference in the rating may reflect the cultural difference in responding, rather than the degree to which people in each culture value the variable being measured (Brislin, 2000; Matsumoto & Juang, 2004).

PLACING CROSS-CULTURAL STUDIES IN CONTEXT: BLENDING

PSYCHOLOGY WITH ANTHROPOLOGY

As the field of psychology entered the twenty-first century, there was a groundswell of interest in cultural factors as they pertain to all areas of psychology. In the field of personality, as well as in other areas, there have always been individuals with an interest in culture and society, but they tended to remain as individuals. Although they were often admired for their unique interests and ideas, the major

emphasis in psychology was on the scientific method and data that had been obtained in carefully controlled situations, and then analyzed with similar, exacting precision. Culture, as difficult as it is to define, was left largely to anthropologists and sociologists.

Anthropologists, in particular, were not as shy about addressing the domain of psychology, and a number of anthropologists crossed over into the study of psychology to such an extent that they are often mentioned even in the introductory psychology textbooks. But given that their primary interest was in anthropology, they did not form detailed personality development theories of the type presented in this (or other) personality textbooks. In this chapter, however, we will take a look at some of the ideas presented by the renowned anthropologist Ralph Linton, and his occasional colleague Abram Kardiner, a psychoanalyst with an associate appointment in the same anthropology department as Linton. In addition to their books, students of personality with a strong interest in cultural influences on personality will also find the works of Ruth Benedict and Margaret Mead of great interest.

THE INFLUENCE OF CULTURE AND SOCIETY ON PERSONALITY

Many psychology textbooks mention a few famous anthropologists, such as Ruth Benedict and Margaret Mead, whose research included work on child development and personality. However, less well-known in the field of psychology is the renowned anthropologist Ralph Linton, who paid particular attention to personality development in relation to culture and society. Linton also collaborated with Abram Kardiner, a founding member of the New York Psychoanalytic Institute (and who was analyzed by Sigmund Freud himself in 1921-1922). Linton and Kardiner freely acknowledged the connections between anthropology and psychology, noting the influence of Benedict and Mead, Franz Boas (recognized as the father of American anthropology and mentor to both Benedict and Mead), and the psychoanalysts Anna Freud, Erich Fromm, Karen Horney, and Wilhelm Reich (Kardiner, 1939; Kardiner, Linton, DuBois, & West, 1945; Kardiner & Preble, 1961).

Linton described personality as existing on three levels. First, personality can be described based on either its content or its organization. The organization, furthermore, can be examined in terms of its superficial organization or its central organization. The central organization of personality gives the whole personality its distinctive character, and includes the most invariant aspects of personality, such as the degree of introversion/extraversion, or other aspects of temperament (Linton, 1936, 1945). Although these temperamental attributes are present at birth, they do not comprise personality *per se*.

The superficial organization of personality, however, is based on the goals and interests of the individual, and incorporates the individual's experiences in life within the context of the central organization. In this regard, the superficial organization should not be confused with something transient or insignificant. It is "superficial" only in the sense that it is on the surface of the personality, and the goals and interests of the person are based on the content of personality that represents their life experiences as they are organized within the personality.

The goals and interests themselves, which incorporate the content of personality, are determined almost entirely by the culture in which the individual is raised. According to Linton (1936), the process of integrating the individual's experience within the context of one's temperament (or "constitutional qualities") forms a "mutually adjusted, functional whole."

A critical question, of course, is whether cultural experiences can affect the central organization. Linton (1936, 1945, 1955) believed that no matter how an individual receives the cultural characteristics of their society, they are likely to internalize them, a process known as **enculturation**. One of the main reasons that enculturation is so influential in every aspect of the person's being, is that it pervades every aspect of the society in which the person lives. Thus, even someone who is considered a rebel, most likely exists within a range of rebellion that is possible within that particular culture. This is directly related to the apparent reality that cultures do give rise to certain types of personality. Making the matter even more complicated, or simpler depending on one's perspective, is the role of status within a culture. Thus, although a given culture or society, or one's own temperament, may influence personality in one direction, a particular social class might influence personality in a different direction. An individual born into a given class, whose personal constitution does not fit that class, may develop what Linton called a **status personality**, i.e., a persona that fits with society's expectations for the individual in certain settings. For example, someone born into an upper middle class family involved in business, who is personally rather introverted and withdrawn, may present a confident and outgoing personality when working, and only upon returning home do they revert to their natural inclination to be shy and quiet.

One of the most interesting points made by Linton is that individuals with complimentary personalities are also mutually adjusted. The most obvious example is that of the gender roles of men and women. Men are expected, in many cultures and societies, to be the dominant member of the family, as well as the "bread-winner." Conversely, women are expected to be submissive, and to remain home and care for the household and the children. In this way, the men and women together complete the necessary tasks for family life without entering into conflict (at least in theory!). In some cultures, these gender roles are quite relaxed with regard to the sex of the individual.

Amongst the Comanche (a Native American tribe), men whose personalities were not at all suited to being warriors assumed a special role, that of **berdache** (Linton, 1936). The berdache wore women's clothes, and typically fulfilled a woman's role, but they were treated with somewhat more respect than women (in keeping with the patriarchal nature of the society). Some were homosexuals (though not all), and even married. This was generally accepted, and any disapproval these relationships received was directed toward the warrior husband, not the berdache!

Abram Kardiner, a psychoanalyst who collaborated with Linton, shared the same general perspective on the relationship between personality and culture, and attempted to put the relationship into psychological terms. He distinguished between the **basic personality**, or **ego structure**, which he considered to be a cultural phenomenon, and the individual's **character**, which is their unique adaptation to the environment within their cultural setting. Thus, each individual develops a unique character, but only within the constraints of the culturally-determined range of potential ego structure (Kardiner, 1939).

The process of personality development, within a cultural setting, results in what Kardiner called a **security system**. The security system of the individual is the series of adaptations that serve to

ensure the individual's acceptance, approval, support, esteem, and status within the group. Thus, for each person within a given cultural group, their basic personality is formed through an ongoing interaction with the very culture in which that person needs to be (and, hopefully, will be) accepted as a member. Both of Kardiner's major books, *The Individual and His Society* (Kardiner, 1939) and *The Psychological Frontiers of Society* (Kardiner, et al., 1945), offer extraordinary examples of detailed anthropological studies of a wide variety of cultures followed by psychoanalytic evaluations of the functions served by various aspects of the cultural practices of those people.

Robert LeVine, like Kardiner, was an anthropologist and psychoanalyst with a strong interest in personality (LeVine, 1973, 1974). He begins by asking the question of whether there are differences in personality between different cultural groups. If there are not, then any analysis of the nature or causes of those alleged differences is meaningless. If there are differences, can we then point to specific evidence that the environment can elicit changes in those differences? The answer is yes to both, and as one example LeVine points to the dramatic **acculturation** of rural immigrants from underdeveloped areas of Europe and Asia who emigrated to industrialized countries, such as the United States, and within two or three generations had radically altered not only their basic ways of life, but also their social class (moving from traditional peasantry to the middle-class; LeVine, 1973).

LeVine also continued Kardiner's approach of using a psychoanalytic perspective to evaluate and compare the nature of different cultures, and he proposed the term **psychoanalytic ethnography**. In an effort to justify the use of psychoanalytic ethnography, LeVine argues that there are enough common elements in the nature of all people and cultures to provide for valid comparisons of the differences between those same people and cultures (LeVine, 1973).

One of the most striking discussions of the relationship between culture and the potential for personality development was offered by Pitirim Sorokin, the founder of Harvard University's sociology department and a colleague of the trait theorist Gordon Allport (see Chapter 13). Sorokin points out that culture can have a dramatic influence on the biological substrates of personality. For example, through the use of contraception, abortion, etc., many potential individuals are never born. Conversely, if such measures are prohibited, many unwanted children are born.

In addition, cultural rules and norms against sexual intercourse and/or marriage between certain age groups, races, social classes, families, religions, etc., directly influence the potential for genetic variation within and across different groups of humans (Sorokin, 1947). Indeed, Sorokin took such a broad view of the role of society and culture in the environmental universe of each individual, that he described trying to understand sociocultural phenomena by locating them in terms of **sociocultural space** and **sociocultural distance**. The concept of sociocultural distance has taken on new meaning since Sorokin proposed it over 50 years ago.

Today, anyone can travel around the world in a matter of hours or days, and many people do so regularly. Technology and globalization have dramatically reduced the distance between people, and consequently brought their cultural differences into contact with one another. Efforts to study cultures and societies alter the location of sociocultural phenomena within our own universe of personal development. In other words, by studying the relationships between society, culture, and personality, we are altering the meaning and influence of those relationships, hopefully for the better.

As a final note, although this section has highlighted the influence of anthropologists and sociologists on cross-cultural research in the study of personality, there has also been an influence from psychology on these investigators. As noted above, both Abram Kardiner and Robert LeVine were psychoanalysts. In addition, Kardiner acknowledges having learned a great deal from a professor named John Dollard. Dollard was a sociologist who had studied psychoanalysis and who collaborated with Neal Miller (a psychologist trained in learning theory) in an effort to apply classical learning theory to psychodynamic theory (see Chapter 10).

Dollard contributed a chapter to one of Linton's books, and was cited by both LeVine and Sorokin (who was, again, also a colleague of Allport). Given such an interesting interaction between the fields of psychology, anthropology, and sociology over half a century ago, it seems surprising that psychology is only now emphasizing the value of focusing on cultural influences on personality development.

APPROACHES TO THE STUDY OF PERSONALITY: PSYCHOANALYTICAL

Research into these five philosophical questions has branched into several different approaches to studying personality. The major theories include the psychodynamic, neo-Freudian, learning (or behaviorist), humanistic, biological, trait (or dispositional), and cultural perspectives.

- Psychodynamic theory, originating with Sigmund Freud, posits that human behavior is the result of the interaction among various components of the mind (the id, ego, and superego) and that personality develops according to a series of psychosexual developmental stages.
- Neo-Freudian theorists, such as Adler, Erikson, Jung, and Horney, expanded on Freud's theories but focused more on the social environment and on the effects of culture on personality. Learning theories, such as behaviorism, regard an individual's actions as ultimately being responses to external stimuli. Social learning theory believes that personality and behavior are determined by an individual's cognition about the world around them.
- Humanistic theory argues that an individual's subjective free will is the most important determinant of behavior. Humanistic psychologists such as Abraham Maslow and Carl Rogers believed that people strive to become self-actualized—the "best version" of themselves.
- Biological approaches focus on the role of genetics and the brain in shaping personality. Related to this, evolutionary theories explore how variation in individual personalities variance may be rooted in natural selection.
- Trait theorists believe personality can be conceptualized as a set of common traits, or characteristic ways of behaving, that every individual exhibits to some degree. In this view, such personality traits are different from person to person but within an individual are stable over time and place.
- With any of these theories, it is important to keep in mind that the culture in which we live is one of the most important environmental factors that shapes our personalities. Western ideas about personality are not necessarily applicable to other cultures, and there is evidence that the strength of personality traits varies across cultures.

GENETICS, THE BRAIN, AND PERSONALITY

The biological perspective on personality emphasizes the influence of the brain and genetic factors on personality. The biological perspective on personality focuses on why or how personality traits

manifest through biology and investigates the links between personality, DNA, and processes in the brain.

- In psychology, "temperament" refers to the personality tendencies that we show at birth (and that are therefore biologically determined). After birth, environmental factors and maturation interact with a child's temperament to shape their personality.
- The field of behavioral genetics focuses on the relationship between genes and behavior. Research from twin studies suggests that some aspects of our personalities are largely controlled by genetics.
- The biological approach to personality has also identified areas and pathways within the brain, as well as various hormones and neurotransmitters, that are associated with the development of personality.
- One of the first documented cases that demonstrated the link between personality and the brain was that of Phineas Gage, who underwent a drastic personality change after a brain

PHINEAS GAGE: A CASE STUDY

One of the first documented cases that demonstrated the link between personality and the brain was that of Phineas Gage. In 1848, Gage was working as a blasting foreman for a railroad company. Due to a faulty blast, a railroad spike was blown through his head; miraculously, he survived the accident. The spike pierced Gage's frontal lobe, and Gage experienced many subsequent changes in aspects of personality that we now know are associated with this area of the brain. The changes in Gage's personality after his brain injury spurred interest in the biological factors involved in personality and implicated the frontal lobe as an important area associated with higher-order personality functions.

GENDER AND PERSONALITY

In much the same manner that cultural norms can influence personality and behavior, gender norms (the behaviors that males and females are expected to conform to in a given society) can also influence personality by emphasizing different traits between different genders. Ideas of appropriate behavior for each gender (masculine and feminine) vary among cultures and tend to change over time. For example, aggression and assertiveness have historically been emphasized as positive masculine personality traits in the United States. Meanwhile, submissiveness and caretaking have historically been held as ideal feminine traits. While many gender roles remain the same, others change over time. In 1938, for example, only 1 out of 5 Americans agreed that a married woman should earn money in industry and business. By 1996, however, 4 out of 5 Americans approved of women working in these fields. This type of attitude change has been accompanied by behavioral shifts that coincide with changes in trait expectations and shifts in personal identity for men and women.

APPROACHES TO STUDYING PERSONALITY IN A CULTURAL CONTEXT

There are three approaches that can be used to study personality in a cultural context: the cultural-comparative approach, the indigenous approach, and the combined approach, which incorporates elements of the first two approaches.

- The cultural-comparative approach seeks to test Western ideas about personality in other

cultures to determine whether they can be generalized and if they have cultural validity (Cheung van de Vijver, & Leong, 2011). For example, researchers used the cultural-comparative approach to test the universality of McCrae and Costa's Five Factor Model. They found applicability in numerous cultures around the world, with the Big Five traits being stable in many cultures (McCrae & Costa, 1997; McCrae et al., 2005).

- The indigenous approach came about in reaction to the dominance of Western approaches to the study of personality in non-Western settings (Cheung et al., 2011). Because Western-based personality assessments cannot fully capture the personality constructs of other cultures, the indigenous model has led to the development of personality assessment instruments that are based on constructs relevant to the culture being studied (Cheung et al., 2011).
- The third approach to cross-cultural studies of personality is the combined approach, which serves as a bridge between Western and indigenous psychology as a way of understanding both universal and cultural variations in personality (Cheung et al., 2011).

FREUDIAN SLIP

Unconscious thoughts and feelings can transfer to the conscious mind in the form of parapraxes, popularly known as Freudian slips or slips of the tongue. We reveal what is really on our mind by saying something we didn't mean to. For example, a nutritionist giving a lecture intended to say we should always demand the best in bread, but instead said bed. Another example is where a person may call a friend's new partner by the name of a previous one, whom we liked better. Freud believed that slips of the tongue provided an insight into the unconscious mind and that there were no accidents, every behavior (including slips of the tongue) was significant (i.e., all behavior is determined).

SOCIAL LEARNING THEORY

In social learning theory, Albert Bandura (1977) agrees with the behaviorist learning theories of classical conditioning and operant conditioning. However, he adds two important ideas:

1. Mediating processes occur between stimuli & responses.
2. Behavior is learned from the environment through the process of observational learning.
- 3.

OBSERVATIONAL LEARNING

Children observe the people around them behaving in various ways. This is illustrated during the famous Bobo doll experiment (Bandura, 1961). Individuals that are observed are called models. In society, children are surrounded by many influential models, such as parents within the family, characters on children's TV, friends within their peer group and teachers at school. These models provide examples of behavior to observe and imitate, e.g., masculine and feminine, pro and anti-social, etc. Children pay attention to some of these people (models) and encode their behavior. At a later time they may imitate (i.e., copy) the behavior they have observed.

They may do this regardless of whether the behavior is 'gender appropriate' or not, but there are a number of processes that make it more likely that a child will reproduce the behavior that its society deems appropriate for its gender. First, the child is more likely to attend to and imitate those people it perceives as similar to itself. Consequently, it is more likely to imitate behavior modeled by people of the same gender. Second, the people around the child will respond to the behavior it imitates with either reinforcement or punishment. If a child imitates a model's behavior and the consequences are rewarding, the child is likely to continue performing the behavior. If a parent sees a little girl consoling her teddy bear and says "what a kind girl you are," this is rewarding for the child

and makes it more likely that she will repeat the behavior. Her behavior has been reinforced (i.e., strengthened).

Reinforcement can be external or internal and can be positive or negative. If a child wants approval from parents or peers, this approval is an external reinforcement, but feeling happy about being approved of is an internal reinforcement. A child will behave in a way which it believes will earn approval because it desires approval. Positive (or negative) reinforcement will have little impact if the reinforcement offered externally does not match with an individual's needs. Reinforcement can be positive or negative, but the important factor is that it will usually lead to a change in a person's behavior.

Third, the child will also take into account of what happens to other people when deciding whether or not to copy someone's actions. A person learns by observing the consequences of another person's (i.e., models) behavior, e.g., a younger sister observing an older sister being rewarded for a particular behavior is more likely to repeat that behavior herself. This is known as vicarious reinforcement. This relates to an attachment to specific models that possess qualities seen as rewarding. Children will have a number of models with whom they identify. These may be people in their immediate world, such as parents or older siblings, or could be fantasy characters or people in the media. The motivation to identify with a particular model is that they have a quality which the individual would like to possess. Identification occurs with another person (the model) and involves taking on (or adopting) observed behaviors, values, beliefs and attitudes of the person with whom you are identifying.

The term identification as used by Social Learning Theory is similar to the Freudian term related to the Oedipus complex. For example, they both involve internalizing or adopting another person's behavior. However, during the Oedipus complex, the child can only identify with the same sex parent, whereas with Social Learning Theory the person (child or adult) can potentially identify with any other person. Identification is different to imitation as it may involve a number of behaviors being adopted, whereas imitation usually involves copying a single behavior.

THERE ARE FOUR MEDIATIONAL PROCESSES PROPOSED BY BANDURA:

1. **Attention:** The extent to which we are exposed/notice the behavior. For a behavior to be imitated, it has to grab our attention. We observe many behaviors on a daily basis, and many of these are not noteworthy. Attention is therefore extremely important in whether a behavior influences others imitating it.

2. **Retention:** How well the behavior is remembered. The behavior may be noticed but is it not always remembered which obviously prevents imitation. It is important therefore that a memory of the behavior is formed to be performed later by the observer.

Much of social learning is not immediate, so this process is especially vital in those cases. Even if the behavior is reproduced shortly after seeing it, there needs to be a memory to refer to.

Reproduction: This is the ability to perform the behavior that the model has just demonstrated. We see much behavior on a daily basis that we would like to be able to imitate but that this not always possible. We are limited by our physical ability and for that reason, even if we wish to reproduce the

behavior, we cannot This influences our decisions whether to try and imitate it or not. Imagine the scenario of a 90-year-old-lady who struggles to walk watching Dancing on Ice. She may appreciate that the skill is a desirable one, but she will not attempt to imitate it because she physically cannot do it.

3. **Motivation:** The will to perform the behavior. The rewards and punishment that follow a behavior will be considered by the observer. If the perceived rewards outweigh the perceived costs (if there are any), then the behavior will be more likely to be imitated by the observer. If the vicarious reinforcement is not seen to be important enough to the observer, then they will not imitate the behavior.

TRAITS & PERSONALITY TYPES:

What makes someone who they are? Each person has an idea of their own personality type if they are bubbly or reserved, sensitive or thick-skinned. Psychologists who try to tease out the science of who we are define personality as individual differences in the way people tend to think, feel and behave. There are many ways to measure personality, but psychologists have mostly given up on trying to divide humanity neatly into types. Instead, they focus on personality traits.

The most widely accepted of these traits are the Big Five:

- Openness
- Conscientiousness
- Extraversion
- Agreeableness
- Neuroticism

Conveniently, you can remember these traits with the handy OCEAN mnemonic (or, if you prefer, CANOE works, too). The Big Five were developed in the 1970s by two research teams. These teams were led by Paul Costa and Robert R. McCrae of the National Institutes of Health and Warren Norman and Lewis Goldberg of the University of Michigan at Ann Arbor and the University of Oregon, according to Scientific American. The Big Five are the ingredients that make up each individual's personality. A person might have a dash of openness, a lot of conscientiousness, an average amount of extraversion, plenty of agreeableness and almost no neuroticism at all. Or someone could be disagreeable, neurotic, introverted, conscientious and hardly open at all. Here's what each trait entails:

OPENNESS

Openness is shorthand for "openness to experience." People who are high in openness enjoy adventure. They're curious and appreciate art, imagination and new things. The motto of the open individual might be "Variety is the spice of life." Advertisement People low in openness are just the opposite: They prefer to stick to their habits, avoid new experiences and probably aren't the most adventurous eaters. Changing personality is usually considered a tough process, but openness is a personality trait that's been shown to be subject to change in adulthood. In a 2011 study, people who took psilocybin, or hallucinogenic "magic mushrooms," became more open after the experience. The effect lasted at least a year, suggesting that it might be permanent.

CONSCIENTIOUSNESS

People who are conscientious are organized and have a strong sense of duty. They're dependable,

disciplined and achievement- focused. You won't find conscientious types jetting off on round-the-world journeys with only a backpack; they're planners. People low in conscientiousness are more spontaneous and freewheeling. They may tend toward carelessness. Conscientiousness is a helpful trait to have, as it has been linked to achievement in school and on the job.

EXTRAVERSION

Extraversion versus introversion is possibly the most recognizable personality trait of the Big Five. The more of an extravert someone is, the more of a social butterfly they are. Extraverts are chatty, sociable and draw energy from crowds. They tend to be assertive and cheerful in their social interactions. Introverts, on the other hand, need plenty of alone time, perhaps because their brains process social interaction differently. Introversion is often confused with shyness, but the two aren't the same. Shyness implies a fear of social interactions or an inability to function socially. Introverts can be perfectly charming at parties — they just prefer solo or small-group activities.

AGREEABLENES

Agreeableness measures the extent of a person's warmth and kindness. The more agreeable someone is, the more likely they are to be trusting, helpful and compassionate. Disagreeable people are cold and suspicious of others, and they're less likely to cooperate. Men who are high in agreeableness are judged to be better dancers by women, suggesting that body movement can signal personality. (Conscientiousness also makes for good dancers, according to the same 2011 study.) But in the workplace, disagreeable men actually earn more than agreeable guys. Disagreeable women didn't show the same salary advantage, suggesting that a no-nonsense demeanor is uniquely beneficial to men.

Being envious, which can lead to people being perceived as not agreeable, was found to be the most common personality type out of the four studies by a report published in August 2016 in the journal *Science Advances*. Envious people feel threatened when someone else is more successful than they are.

NEUROTICISM

To understand neuroticism, look no further than George Costanza of the long-running sitcom "Seinfeld." George is famous for his neuroses, which the show blames on his dysfunctional parents. He worries about everything, obsesses over germs and disease and once quits a job because his anxiety over not having access to a private bathroom is too overwhelming. George may be high on the neuroticism scale, but the personality trait is real. People high in neuroticism worry frequently and easily slip into anxiety and depression. If all is going well, neurotic people tend to find things to worry about. One 2012 study found that when neurotic people with good salaries earned raises, the extra income actually made them less happy.

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In contrast, people who are low in neuroticism tend to be emotionally stable and even-keeled. Unsurprisingly, neuroticism is linked with plenty of bad health outcomes. Neurotic people die younger than the emotionally stable, possibly because they turn to tobacco and alcohol to ease their nerves. Possibly the creepiest fact about neuroticism, though, is that parasites can make you feel that way. And we're not talking about the natural anxiety that might come with knowing that a tapeworm has made a home in your gut. Undetected infection by the parasite *Toxoplasma gondii* may make people more prone to neuroticism, a 2006 study found.

OTHER PERSONALITY MEASURES

Sensing and intuition refer to how people prefer to gather information about the world, whether through concrete information (sensing) or emotional feelings (intuition). Thinking and feeling refer to how people make decisions. Thinking types go with logic, while feeling types follow their hearts. The Myers-Briggs system is rounded out with the judging/perception dichotomy, which describes how people choose to interact with the world. Judging types like decisive action, while perceiving types prefer open options. The system further identifies 16 personality types based on a combination of four of the categories, leading to descriptions such as ISTP, ENFP, ESFJ, etc.

COGNITIVE PERSONALITY THEORIES

Cognitive theories of personality focus on the processes of information encoding and retrieval, and the role of expectations, motives, goals, and beliefs in the development of stable personality characteristics. This approach differs from personality theories that emphasize either the conditions within which personality develops (e.g., behavioral theories) or the trait structures that are revealed in those various conditions (e.g., evolutionary and trait theories). As such, cognitive theories of personality are particularly relevant for counseling psychology because of their core assumption that lasting personality change can occur as a result of rational analysis and insight. Personality theories are often categorized as either nomothetic (i.e., personality is understood in terms of an individual having greater or lesser amounts of traits that are common to all people) or idiographic (i.e., each individual has a unique personality structure and may possess traits that others do not possess). Taking a nomothetic approach, a personality theory can be used to generalize about an individual or to categorize the person. For example, a person can be said to have a particular trait or style. On the other hand, personality theories that take an idiographic approach attempt to describe the specific individual in such a way as to show how this one individual is different from all other individuals. Cognitive theories of personality are both nomothetic and idiographic. Nomothetic theorists have demarcated dimensions of individual difference such as cognitive styles. Idiographic theorists have developed complex descriptions of individuals cognitively embedded within their own life contexts.

GENERAL COMPONENTS OF COGNITIVE PERSONALITY THEORIE

Most cognitive theories of personality focus on the ways in which personal knowledge and judgment are developed. Often this development occurs in a distorted fashion because it is necessary for people to adapt to their environment. Humans desire to be consistent in their beliefs and behaviors so that they can predict the outcome of their actions. They are also motivated to gain social approval from others and to enhance their perception of themselves. This can result from a process of comparing one's self with those of others or a process of comparing what one believes is one's actual self with an imagined ideal self. Cognitive personality theorists have focused their efforts on describing the development of cognitions that explain the world and the individual's concept of self in it, and they have also developed some understanding of variations in cognitive styles that predict individual differences.

HISTORY OF COGNITIVE PERSONALITY THEORIES

Early ideas related to cognitive theory can be traced back to the Greek Stoic Epictetus, who claimed that processes of rational judgment were at the basis of all emotion, be it happiness or suffering. He stated that events in and of themselves have no moral or ethical meaning. Moral judgment and choice are the consequences of how people come to interpret and understand events. At the turn

of the 20th century, William James championed the idea that no psychological theory is complete that does not allow for a mechanism by which thought will regulate actions. James emphasized the role of the focus of attention in determining behavior. He also anticipated the concept of cognitive schemata by characterizing the stream of consciousness as anticipating and adapting to current events by comparing current experiences to past experiences.

Early work in social cognition forms a basis of current cognitive personality theory. Fritz Heider, an early social psychologist, emphasized that people act with others on the basis of their conceptions of themselves and of others. Heider developed the notion of phenomenal causality, which is the perception of causality that leads to judgment and action. Heider's ideas led to the development of the field within social psychology known as attribution theory, which is the study of the determinants of phenomenal causality or causal attributions. One important dimension of causal attributions is that of internal (or dispositional) versus external (or situational) attributions. People's judgments and conceptions of an event are largely determined by their beliefs regarding whether people act according to internal dispositions or because of situational pressure. Heider's ideas are often called naive psychology in that the person is described as acting according to his or her own personal theory of psychology regarding others.

KELLY'S THEORY OF PERSONAL CONSTRUCTS

George A. Kelly's theory of personal constructs is most frequently cited as the first modern cognitive personality theory. Kelly proposed and elaborated upon the metaphor of "person as scientist." Drawing on the theories of Heider and attribution researchers, Kelly proposed that people use observations to develop beliefs about themselves and their world. These observations are organized into personal constructs, which were described by Kelly in terms very similar to the current concept of cognitive schemata. Cognitive schemata are meaningful organizations of related pieces of knowledge. Kelly proposed that people make predictions and interpretations regarding their experience on the basis of their personal constructs (or schemata), and they endeavor to behave in a manner that is consistent with their personal constructs.

Kelly proposed that personal constructs develop and change through processes that are similar to assimilation and accommodation. As described by the cognitive developmental theorist Jean Piaget, assimilation is the process by which people integrate new information into the existing body of information they already possess. Accommodation is the process by which people change or modify their existing knowledge based on the information gained from new experiences. Like Piaget, Kelly viewed cognitive development as a continuing interplay between assimilation and accommodation.

For example, children learn to catch a large ball by holding out their arms a certain distance apart as the ball is thrown. Later, when a smaller ball is thrown, they will hold out their arms the same distance apart (assimilation) but fail to catch the ball. They will need to accommodate the new information that the size of the ball must determine the distance apart that they spread their arms (i.e., their catching schema).

HUMANISTIC APPROACH

Humanistic, humanism and humanist are terms in psychology relating to an approach which

studies the whole person, and the uniqueness of each individual. Essentially, these terms refer to the same approach in psychology. The humanistic approach in psychology developed as a rebellion against what some psychologists saw as the limitations of the behaviorist and psychodynamic psychology. The humanistic approach is thus often called the "third force" in psychology after psychoanalysis and behaviorism (Maslow, 1968).

Humanism rejected the assumptions of the behaviorist perspective which is characterized as deterministic, focused on reinforcement of stimulus-response behavior and heavily dependent on animal research. Humanistic psychology also rejected the psychodynamic approach because it is also deterministic, with unconscious irrational and instinctive forces determining human thought and behavior. Both behaviorism and psychoanalysis are regarded as dehumanizing by humanistic psychologists.

HUMANISTIC PSYCHOLOGY EXPANDED ITS INFLUENCE THROUGHOUT THE 1970S AND THE 1980S. ITS IMPACT CAN BE UNDERSTOOD IN TERMS OF THREE MAJOR AREAS:

- 1) It offered a new set of values for approaching an understanding of human nature and the human condition.
- 2) It offered an expanded horizon of methods of inquiry in the study of human behavior.
- 3) It offered a broader range of more effective methods in the professional practice of psychotherapy.

Humanistic psychology begins with the existential assumptions that people have free will. Personal agency is the humanistic term for the exercise of free will. Personal agency refers to the choices we make in life, the paths we go down and their consequences.

People are basically good, and have an innate need to make themselves and the world better: The humanistic approach emphasizes the personal worth of the individual, the centrality of human values, and the creative, active nature of human beings.

The approach is optimistic and focuses on the noble human capacity to overcome hardship, pain and despair.

PEOPLE ARE MOTIVATED TO SELF-ACTUALIZE:

Self-actualization concerns psychological growth, fulfillment and satisfaction in life. Both Rogers and Maslow regarded personal growth and fulfillment in life as a basic human motive. This means that each person, in different ways, seeks to grow psychologically and continuously enhance themselves. However, Rogers and Maslow both describe different ways of how self-actualization can be achieved.

THE SUBJECTIVE, CONSCIOUS EXPERIENCES OF THE INDIVIDUAL IS MOST IMPORTANT:

Humanistic psychologists argue that objective reality is less important than a person's subjective perception and understanding of the world. Sometimes the humanistic approach is called phenomenological. This means that personality is studied from the point of view of the individual's subjective experience. For Rogers the focus of psychology is not behavior (Skinner), the unconscious (Freud), thinking (Wundt) or the human brain but how individuals perceive and interpret events. Rogers is therefore important because he redirected psychology towards the study of the self.

HUMANISM REJECTS SCIENTIFIC METHODOLOGY:

Rogers and Maslow placed little value on scientific psychology, especially the use of the psychology laboratory to investigate both human and animal behavior. Humanism rejects scientific methodology like experiments and typically uses qualitative research methods. For example, diary accounts, open-ended questionnaires, unstructured interviews and unstructured observations. Qualitative research is useful for studies at the individual level, and to find out, in depth, the ways in which people think or feel (e.g. case studies).

The way to really understand other people is to sit down and talk with them, share their experiences and be open to their feelings. Humanism rejected comparative psychology (the study of animals) because it does not tell us anything about the unique properties of human beings. Humanism views human beings as fundamentally different from other animals, mainly because humans are conscious beings capable of thought, reason and language. For humanistic psychologists' research on animals, such as rats, pigeons, or monkeys held little value. Research on such animals can tell us, so they argued, very little about human thought, behavior and experience.

EXISTENTIAL PSYCHOLOGY

Existential psychology is the area within psychology most closely linked to the field of philosophy. Curiously, this provides one of the most common complaints against existential psychology. Many historians identify the establishment of Wilhelm Wundt's experimental laboratory in Germany in 1879 as the official date of the founding of psychology. Sigmund Freud, with his strong background in biomedical research, also sought to bring scientific methodology to the study of the mind and mental processes, including psychological disorders and psychotherapy.

Shortly thereafter, Americans such as Edward Thorndike and John Watson were establishing behaviorism, and its rigorous methodology, as the most influential field in American psychology. So, as existential psychology arose in the 1940s and 1950s it was viewed as something of a throw-back to an earlier time when psychology was not distinguished from philosophy (Lundin, 1979). However, as with those who identify themselves as humanistic psychologists, existential psychologists are deeply concerned with individuals and the conditions of each unique human life. The detachment that seems so essential to experimental psychologists is unacceptable to existential psychologists.

The difference can easily be seen in the titles of two influential books written by the leading existential psychologists: *Man's Search for Meaning* by Viktor Frankl (1946/1992) and *Man's Search for Himself* by Rollo May (1953). Existential psychology differs significantly from humanistic psychology, however, in focusing on present existence and the fear, anguish, and sorrow that are so often associated with the circumstances of our lives (Lundin, 1979). The German existentialists Martin Heidegger (1889-1976) and Karl Jaspers (1883-1969) focused on human existence itself and our role in the world. In a sense, Heidegger trivialized the nature of God, equating God with little more than the greatest being in the world, but a being nonetheless (just as humans are).

Jaspers was not an atheist, but still his existential theory focused on the human journey toward a **freedom** that has meaning only when it reveals itself in union with God (Breisach, 1962; Lescoe, 1974). Heidegger considered individuals as beings who are all connected in **Being**, thus

distinguishing between mere beings (including other animals) and the nature of truth or Being. Only humans are capable of understanding this connection between all beings, and Heidegger referred to this discovery as **Dasein** ("being here," or existence). On one level, Dasein is common to all creatures, but the possibility of being aware of one's connection to Being is uniquely human. For those who ask the big questions, Dasein can become authentic existence. This experience comes in the fullness of life, but only if one adopts the mode of existence known as **being-in-the-world**. Heidegger insisted that Dasein and being-in-the-world are equal.

Being-in-the-world is an odd concept, however, since Heidegger believed that Being can only arise from nothingness, and so we ourselves arise as **being-thrown-into-this-world**. Having been thrown into this mysterious world we wish to make it our own, but our desire for connection with Being leads to anxiety. This anxiety cannot be overcome, because we are aware that we will die! Surprisingly, however, Heidegger considers death to be something positive. It is only because we are going to die that some of us strive to experience life fully.

If we can accept that death will come, and nothing will follow, we can be true to ourselves and live an authentic life (Breisach, 1962; Lundin, 1979). Finally we come to the French existentialist Jean-Paul Sartre (1905-1980). Sartre was an extraordinary author and one of the most important philosophers of the twentieth century. He was awarded the Nobel Prize in Literature in 1964, but chose to reject it. More importantly for us, however, is the fact that he carried existential philosophy directly into psychology, with books such as *The Transcendence of the Ego* (Sartre, 1937/1957) and a section entitled "Existential Psychoanalysis" in his extraordinary work *Being and Nothingness* (Sartre, 1943). Whereas Kierkegaard believed that man could never truly be one with God, and Heidegger trivialize.

God, Sartre simply stated that God does not exist. But this is not inconsequential: The Existentialist, on the contrary, thinks it very distressing that God does not exist, because all possibility of finding values in a heaven of ideas disappears along with Him; there can no longer be an a priori Good, since there is no infinite and perfect consciousness to think it. (pg. 459; Sartre, 1947/1996). Unfortunately, many people do reject their unique consciousness and desire to be en-soi, just letting life happen around them. As the en-soi closes in around them, they begin to experience nausea, forlornness, anxiety, and despair. Herein lays the need for **existential psychoanalysis**.

TRANSPERSONAL PSYCHOLOGY

Transpersonal psychology is a field or school of thought in psychology centered on the spiritual aspects of human life. The term transpersonal psychology was first introduced in the 1960s by psychologists such as Abraham Maslow and Victor Frankl. This field utilizes psychological methods and theories to examine the spiritual subject matter. Transpersonal psychology is a label for a type of psychological theory that embraces a wide variety of ideas that have nothing to do with religion and everything to do with the mind and behavior. Transpersonal psychology looks at the whole human experience.

While not all definitions of transpersonal psychology are exactly the same, researchers Lajoie and Shapiro have suggested that there are several key factors that figure into most explanations of the field. These include spirituality, higher potential, transcendence and other states of consciousness. In her 2009 book *Eyes Wide Open: Cultivating Discernment on the Spiritual Path*, Mariana Caplan wrote: "Transpersonal psychologists attempt to integrate timeless wisdom with modern

Western psychology and translate spiritual principles into scientifically grounded, contemporary language. Transpersonal psychology addresses the full spectrum of human psychospiritual development—from our deepest wounds and needs to the existential crisis of the human being, to the most transcendent capacities of our consciousness." Instead of focusing on one school of psychological thought, or even just one discipline, transpersonal psychology seeks to incorporate a broad array of ideas, disciplines, and theories like philosophy, literature, health theories, art, social theory, cognition science, and different spiritual traditions, says Sofia University, formerly the Institute of Transpersonal Psychology. Sofia University is a private institution that was initially founded to educate students in transpersonal psychology and continues to pass on transpersonal values.

POPULARITY

Although transpersonal psychology is not often explored in traditional psychology programs, there is increasing interest in this perspective and how theories and ideas from this field can be applied to different subfields of psychology. Mindfulness meditation, for example, is one element of transpersonal psychology that is becoming more popularly used.

DIFFERENCE FROM PARAPSYCHOLOGY

Transpersonal psychology is sometimes confused with parapsychology, although it is important to note that the two are not the same. While transpersonal psychology focuses on the spiritual side of human nature, parapsychology is concerned with the paranormal, such as psychic phenomena, including precognition, clairvoyance, near-death experiences, and psychokinesis.

OTHER THEORIES: ROTTER'S LOCUS OF CONTROL

A scientific theory presents an explanation about some aspect of human behavior or the natural world which is supported through repeated testing and experiments. This means that scientists have collected evidence that supports the theory. Many different researchers have gathered the evidence that supports the theory. As new evidence and research are added, a theory may then be refined, modified, or even rejected if it does not fit with the latest scientific findings. The overall strength of a scientific theory hinges on its ability to explain diverse phenomena.

PURPOSE OF A PSYCHOLOGY THEORY

In psychology, theories are used to provide a model for understanding human thoughts, emotions, and behaviors. Throughout psychology's history, a number of theories have been proposed to explain and predict various aspects of human behavior. A psychological theory has two key components: It must describe a behavior.

1. It must make predictions about future behaviors.

Each theory has helped contribute to our knowledge of the human mind and behavior. Some theories, such as classical conditioning, are still well accepted today.² Others, like Freud's theories, have not held up so well and have been mostly replaced by new theories that better explain human development.

DIFFERENT TYPES OF PSYCHOLOGICAL THEORIES

There are many psychology theories, but most can be categorized as one of four key types.

DEVELOPMENTAL THEORIES

Theories of development provide a framework for thinking about human growth, development, and

learning. If you have ever wondered about what motivates human thought and behavior, understanding these theories can provide useful insight into individuals and society. Developmental theories provide a set of guiding principles and concepts that describe and explain human development. Some developmental theories focus on the formation of a particular quality, such as Kohlberg's theory of moral development.³ Other developmental theories focus on growth that happens throughout the lifespan, such as Erikson's theory of psychosocial development.

GRAND THEORIES

Grand theories are those comprehensive ideas often proposed by major thinkers such as Sigmund Freud, Erik Erikson,⁴ and Jean Piaget. Grand theories of development include psychoanalytic theory, learning theory, and cognitive theory. These theories seek to explain much of human behavior, but are often considered outdated and incomplete in the face of modern research. Psychologists and researchers often use grand theories as a basis for exploration, but consider smaller theories and recent research as well.

MINI-THEORIES

Mini-theories describe a small, very particular aspect of development. A mini-theory might explain relatively narrow behaviors, such as how self-esteem is formed⁵ or early childhood socialization. These theories are often rooted in the ideas established by grand theories, but they do not seek to describe and explain the whole of human behavior and growth.

EMERGENT THEORIES

Emergent theories are those that have been created relatively recently and are often formed by systematically combining various mini-theories. These theories draw on research and ideas from different disciplines but are not yet as broad or far-reaching as grand theories. The sociocultural theory proposed by Lev Vygotsky is a good example of an emergent theory of development.⁶

EXAMPLES OF PSYCHOLOGY THEORIES

Some of the best-known theories of psychology focus on specific branches within psychology. Some of these include:

BEHAVIORAL THEORIES

Behavioral psychology, also known as behaviorism, is a theory of learning based on the idea that all behaviors are acquired through conditioning. Advocated by famous psychologists such as John B. Watson and B.F. Skinner, behavioral theories dominated psychology during the early half of the twentieth century.⁷ Today, behavioral techniques are still widely used by therapists to help clients learn new skills and behaviors.

COGNITIVE THEORIES

Cognitive theories of psychology are focused on internal states, such as motivation, problem-solving, decision-making, thinking, and attention. Such theories strive to explain different mental processes including how the mind processes information.

HUMANISTIC THEORIES

Humanistic psychology theories began to grow in popularity during the 1950s.⁸ While earlier theories often focused on abnormal behavior and psychological problems, humanist theories instead emphasized the basic goodness of human beings. Some of the major humanist theorists included Carl Rogers and Abraham Maslow.

PERSONALITY THEORIES

Personality psychology looks at the patterns of thoughts, feelings, and behavior that make a person unique. Some of the best-known theories in psychology are devoted to the subject of personality, including the trait theory of personality, the "big 5" theory of personality, and Erikson's theory of psychosocial development.⁹

SOCIAL PSYCHOLOGY THEORIES

Social psychology is focused on helping us understand and explain social behavior. Social theories are generally centered on specific social phenomena, including group behavior,¹⁰ prosocial behavior, social influence, love and much more.

WHY THEORIES MATTER

In your psychology courses, you may find yourself questioning how necessary it is to learn about different psychology theories, especially those that are considered inaccurate or outdated. However, all of these theories provide valuable information about the history of psychology, the progression of thought on a particular topic, and a deeper understanding of current theories.

LOCUS OF CONTROL

Julian Rotter developed a social learning theory that emphasized the role of the cognitive expectancy of reward in determining behavior. The major contribution of this theory to the psychology of personality was the proposal of a generalized cognitive expectancy that Rotter called locus of control. Individuals differ to the extent that they generally believe their own actions are related to personal outcomes. Those with an internal locus of control have a strong expectation that success or failure will result from their own efforts. Those with an external locus of control generally believe that success or failure is determined by fate, chance, or the will of others.

Currently, psychologists believe individuals can have different locus of control beliefs for different aspects of their life. For example, an individual could have an internal locus of control regarding social relationships and an external locus of control regarding his or her health. One domain that has been predictive of therapy outcome is the individual's locus of control beliefs concerning illness or health outcomes. Causal attributions also determine whether events are believed to be stable or transient. For example, a stable causal attribution might be, "I did poorly on the algebra test because I have never been very good at math." A transient attribution could be, "I did poorly on the algebra test because I did not get enough sleep last night." Finally, causal attributions may be general (i.e., relevant to many experiences) or specific (i.e., applicable only to a single instance). For example, a stable causal attribution might be, "I didn't dance well because I have never been coordinated." A specific attribution could be, "I didn't dance well because I have never liked dancing."

Locus of control refers to the extent to which people feel that they have control over the events that influence their lives.

When you are dealing with a challenge in your life, do you feel that you have control over the outcome? Or do you believe that you are simply at the hands of outside forces? If you believe that you

have control over what happens, then you have what psychologists refer to as an internal locus of control. If you believe that you have no control over what happens and that external variables are to blame, then you have what is known as an external locus of control. Your locus of control can influence not only how you respond to the events that happen in your life, but also your motivation to take action.

If you believe that you hold the keys to your fate, you are more likely to take action to change your situation when needed. If on the other hand, you believe that the outcome is out of your hands, you may be less likely to work toward change.

INTERNAL VS. EXTERNAL LOCUS OF CONTROL

It is important to note that locus of control is a continuum. No one has a 100 percent external or internal locus of control. Instead, most people lie somewhere on the continuum between the two extremes. These are characteristics of people with dominant internal or external locus of control.

INTERNAL LOCUS OF CONTROL

- Are more likely to take responsibility for their actions
- Tend to be less influenced by the opinions of other people
- Often do better at tasks when they are allowed to work at their own pace
- Usually, have a strong sense of self-efficacy
- Tend to work hard to achieve the things they want
- Feel confident in the face of challenges
- Tend to be physically healthier
- Report being happier and more independent
- Often achieve greater success in the workplace

EXTERNAL LOCUS OF CONTROL

- Blame outside forces for their circumstances
- Often credit luck or chance for any successes
Don't believe that they can change their situation through their own effort
- Frequently feel hopeless or powerless in the face of difficult situations
- Are more prone to experiencing learned helplessness

SELIGMAN'S EXPLANATORY STYLES

Over time the concept of attributional and explanatory styles evolved into a comprehensive theoretical framework, becoming a major research paradigm within psychology with a bearing on individuals' propensity towards optimism or **pessimism** and in turn, subsequent positive or negative mental states and outcomes. In psychology, the term attribution has two predominant meanings. The first refers to explanations of behavior; the second refers to inferences (attributing blame, for example). "What the two meanings have in common is a process of assigning: in attribution as an explanation, a behavior is assigned to its cause; in attribution as inference, a quality or attribute is assigned to the agent on the basis of observed behavior." (Malle, 2011, p.17).

Similarly, Fiske & Taylor (1991, p. 23) suggested attribution theory "deals with how the social perceiver uses information to arrive at causal explanations for events. It examines what information is gathered and how it is combined to form a causal judgment."

Not to be confused with dispositional optimism – which sees optimism as a broad personality trait (Carver & Scheier, 2003) – the explanatory style is more concerned with immediate tendencies to view everyday events from a predominantly optimistic or pessimistic perspective. According to Buchanan & Seligman (1995, p.1), “the general definition of explanatory style is quite simple, it is our tendency to offer similar explanations for different events.” Additionally, explanatory styles can cause people to have disparate perceptions of the same event. Put simply your attributional and explanatory style is the way in which you explain your circumstances to yourself.

A LOOK AT THE PSYCHOLOGY

People have a propensity to seek explanations for events. Whether it is within politics, science, philosophy, psychology or in everyday life, we want to know why things happen. Within psychology, this persistent drive to work out the ‘why’ compelled researchers to investigate why some individuals favor certain explanatory approaches over others (Buchanan & Seligman, 1995). While human responses to uncontrollable events in laboratory settings were of interest, psychologists naturally became curious about real-world applications. This real-world focus was particularly in relation to how individuals make sense of their actions, how this impacts **emotions** (Buchanan & Seligman, 1995) and how we **regulate** these emotions (Gross, 2000).

Does an individual’s explanatory characteristics determine their emotional state? Why do some individuals seem to give up and accept their fate in the face of **adversity** while some remain upbeat despite a string of ‘failures’? Why do some appear powerless in the absence of control? Through asking such questions psychologists developed a number of hypotheses resulting in a plethora of studies concerning optimistic and pessimistic behavioral patterns and the potential long term effects on psychological health. 60 years of research into the ways individuals habitually explain events has cultivated a theory which is not only reliable but also measurable.

THE THEORY OF EXPLANATORY STYLES

Grounded in scientific method, theories of psychology are ever-evolving as practitioners and researchers in the space constantly review, validate and propose new hypotheses. The theory of explanatory styles is no different; research in the field stretches back decades and continues to spur fresh publications as time goes on. Heider (1958, as cited in Malle, 2011) initially distinguished between perceived internal and external causes for events. Subsequently, attributional theorist, Weiner (1972) drew a distinction between (temporally) stable versus unstable causes, with stable attributions for failure being seen to contribute towards poor or low levels of **motivation**. The third dimension of helplessness was first introduced by Kelley (1972) who focussed on ascriptions of global versus specific causes for adverse events.

The concept of explanatory style with three parameters (internality, stability, and globality) and the inclusion of a proposed distinction between optimistic and pessimistic attributional styles was hypothesized by Abramson, Semmel, Seligman, & Von Baeyer (1978). Explanatory style as we know it was born primarily from two antecedents: The Learned Helplessness Model and The Reformulation of the Learned Helplessness Model. Learned helplessness mode **Learned helplessness** proposes that control over the environment is a fundamental precursor of positivism for any organism. If an individual is repeatedly exposed to unavoidable painful or otherwise negative stimuli, they will come to expect that such events are uncontrollable and potentially develop a sense of hopelessness and depression as a result (Overmier & Seligman, 1967). First observed in laboratory experiments in

which animals were subjected to painful electric shocks with no opportunity for escape or avoidance, Maier & Seligman (1976) found that, after a period, animals would passively endure the pain. The research suggested that helplessness is a learned behavior. When placed in a situation where there is no control over the outcome, the animals were conditioned to expect that future attempts to negate the shocks would be futile and therefore gave up trying. Hiroto & Seligman (1975) hypothesized that humans, like animals, would cease attempts to change their circumstances if it was deemed to be out of their control, highlighting the importance of how we attribute causality and control in mediating our mental state.

PESSIMISTIC EXPLANATORY STYLE

Pessimists have the opposite explanatory style. They personally blame themselves for bad events and perceive the root cause to be a fixed factor. When something good happens, they tend to attribute it to luck and see the cause as temporary. The reformulation of the learned helplessness model of depression and the hopelessness model of depression predict that individuals who have a proclivity for pessimistic styles of explaining events experience failure more frequently than those with a more optimistic style in achievement-based scenarios.

Additionally, individuals with pessimistic explanatory styles are more likely to experience pervasive and chronic symptoms of helplessness when faced with uncontrollable negative events. Maladaptive thought patterns can fuel issues such as depression by creating a cycle of **negative thought** that perpetuates the problem (Eisner, 1995). Depressive symptoms are most likely to occur when a vulnerable person experiences negative environmental circumstances (Schneider, Gruman, & Coutts, 2012). In this situation, a person is deemed vulnerable if they interpret the cause of negative events as something that cannot be changed (stable attribution) and affecting their whole life (global attribution). A person with these traits could be described as having a specific type of depression, called hopelessness depression (Schneider et al., 2012).

Seligman (1998) proposed that the explanatory style theory of optimism provides pessimistic people with an avenue to alter their pessimistic thinking patterns to be more optimistic, thus fostering mastery and **resilience**. For example, studies with middle-school children showed that retraining pessimistic thinking into optimistic thinking can significantly reduce the incidence of depression (Nolen-Hoeksema, Girgus, and Seligman, 1986).

EXPLANATORY STYLE DIMENSIONS & EXAMPLES

A person's attributional style describes how they explain life events to themselves. When someone forms an explanation it involves three dimensions which influence how we explain an outcome, namely internality versus externality, stability versus instability, and globality versus specificity (Peterson, 1991), easily remembered as the three Ps: personalization, permanence, and pervasiveness, respectively. Abraham, Seligman and Teasdale (1978) postulated that the way in which we attribute negative outcomes plays a role in mediating the negative psychological impact of adverse events.

INTERNAL VS EXTERNAL (PERSONALIZATION)

Is an outcome caused by factors within oneself or outside oneself? Was success or failure down to inherent abilities or failings or caused by favorable or impinging external conditions? An individual with a propensity to blame failure on themselves and success on external factors shows more severe helplessness deficits such as passivity, depression, poor problem solving, low self-esteem, poor immune function, and even higher morbidity than a person who explains failure as being due

to extraneous factors (Maier & Seligman, 1976; Peterson, 1988). An internal attribution occurs when an individual blames a negative outcome to an inherent failing or a positive outcome to their own abilities. For example, “I failed the exam because I’m stupid” (pessimistic) or “I passed the exam because I worked hard” (optimistic).

An external attribution occurs when a negative or positive event is attributed to the situational context. For example, “I failed the exam because the room was too noisy” (optimistic) or “I passed the exam because I got the right questions” (pessimistic). Examples of Explanatory Style Michelle the optimist and Susan the pessimist complete an assignment for school: Michelle the optimist receives an ‘A’ from her teacher. Michelle’s optimistic explanatory style means she is more inclined to attribute her success to her own hard work and ability – she worked hard on the assignment and is good at this subject.

If Michelle had failed the assignment, she would likely have attributed this to external factors – she didn’t do well because her neighbors were having a loud party. Michelle stills believe that she will do well in future assignments, the failure was not due to her lackof knowledge and will not impact future grades. Susan the pessimist receives an ‘A’ for her assignment. Susan’s pessimistic explanatory style means she is less inclined to attribute her success to her own skills – it was probably just luck or maybe her teacher was feeling generous, it certainly wasn’t due to her ability in the subject.

If Susan had failed her assignment, she would most likely blame herself – she’s just no good at these things. Susan knows that she will probably do badly in future assignments. Alex the optimist and Michael the pessimist work hard on important proposals for work: Alex the optimist meets with his directors and they love his idea. Alex’s optimistic explanatory style means he is more likely to attribute this success to his own skills and ability – his skills are internal, stable, and global. If Alex’s employers had disliked his proposal, he would likely have attributed this to external factors – maybe they were preoccupie with other things. Alex still expects future proposals to be successful because the proposal failed due to their temporary problem and not his lack of ability.

Michael the pessimist meets with his directors and they are impressed with his idea. Michael’s pessimistic explanatory styles mean he is more likely to attribute this success to external factors – he was lucky on the day but this does not mean he will be successful in future endeavors. If Michael’s employers had not been impressed with his proposal hewould be inclined to attribute this to internal factors – he’s just no good at presentations. Michael knows that future attempts will be unsuccessful because the failure was due to his own lack of ability.

MARTIN SELIGMAN AND EXPLANATORY STYLE

One name you may have come across in your inexhaustible journeyalong the road of positive psychology is Dr. [Martin Seligman](#). Considered a founding father of positive psychology, former head ofthe American Psychological Association (APA), Dr. Seligman is a leading authority in the field and had a hand in developing early attribution style theories based on the learned helplessness model which later evolved into a more robust explanatory style. Explanatory style is but the latest theory on how we as individuals explain our experiences to ourselves and has roots stretching back decades in terms of peer-reviewed literature.

The modern theory of explanatory style and the postulated role it plays in mediating between positive and negative mental states stemmed originally from the work of Overmier and Seligman (1967)

in which they formulated the learned helplessness model. During the study, rats were given electric shocks over which they had no control. It was found that rats learned that the outcome was independent of their responses and became passive, thereby learning helplessness.

However, the model didn't account for the potential of learned optimism or for individual differences in resilience when applied to humans, therefore, prompting a reformulation of the learned helplessness model by Abramson et al., (1978). In their reformulated model of learned helplessness, the researchers proposed that an individual's explanatory style influenced the level of optimism/pessimism with which they regarded future events. Based on the findings, Seligman proposed three dimensions of explanatory style, neatly summarised by the three Ps: Pervasiveness – Global / Specific: Whether or not the factors influencing an outcome are seen to be event-specific or globally applicable.

Permanence – Stable / Unstable: If the outcome is based on factors which are changeable (unstable) or perceived to be temporally fixed (stable). Personalization – Internal / External: Relating to the level of personal control an individual feels they hold relating to an outcome. Based on these dimensions, individuals can display an optimistic or pessimistic explanatory style. This by no means encapsulates Dr. Seligman's total involvement in the spawning of our modern day theory of explanatory style and how it impacts on levels of optimism, pessimism and associated positive or negative emotional states.

Over the years, Seligman has refined and validated the theory as well as proposed several methods of measuring an individual's explanatory style, including the Attributional Style Questionnaire (Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982), the Children's Attributional Style Questionnaire (Kaslow, Tannenbaum, & Seligman, 1978) and the Content Analysis of Verbatim Explanations Technique (Peterson, Schulman, Castellon, & Seligman, 1992). There has been an abundance of research in the area of attribution theory and explanatory style, but the drive to adapt and update theories means this remains an active area of investigation.

While much of the past research regarding interventions to an individual's explanatory style has focused on the link between a pessimistic explanatory style and depressive symptoms, the field of research into interventions which promote an optimistic explanatory style and any subsequent positive mental outcomes remains relatively wide-open (Fredrickson, 2001).

METHODS OF MEASUREMENT

How do we go about measuring explanatory styles? There are two main methods by which researchers assess attributional style: the Attributional Style Questionnaire (ASQ: Peterson et al., 1982) and the Content Analysis of Verbatim Explanations (CAVE: Peterson et al., 1992). Both measures collect information from participants regarding their attributions on the three dimensions. Determining precisely where the participant's attributions lie on each of these three dimensions is the goal of both the ASQ and the CAVE methods. The response allow researchers to make general conclusions about the overall attributional style of the participant.

One of the earliest and most commonly utilized assessment tools for adults is the attributional style questionnaire. Developed as a test to investigate and measure individual differences in habitual explanatory tendencies, a composite explanatory style score is formed by combining scores from the three dimensions (Peterson et al., 1993).

The ASQ presents individuals with hypothetical events and asked to imagine they involve them

personally. In each case, they are asked questions related to perceived causes and the situation as a whole. Responses are then rated on a scale of 1-7 along the three dimensions of internality, stability, and globality (Dykema, Bergbower, Doctra & Peterson, 1996). While the ASQ is an efficient method to obtain attributions for multiple events, as with many questionnaire-based studies it can potentially limit the quantity and demographics of participants. In response to this, the CAVE technique is a method that allows the researcher to analyze naturally occurring verbatim materials for explanatory style.

This technique has been successfully employed with adults particularly when a retrospective analysis of explanatory style is required. In this method, verbal or written causal effect statements by subjects are rated along the same permanent, personal and pervasive dimensions. The CAVE technique allows the measurement of populations or individuals whose behavior is of interest but who cannot take questionnaires. Explanatory style can be assessed by blind, reliable content analysis of verbatim explanations from the historical records. Subjects who are famous, dead, or otherwise unavailable can be studied as easily as anyone else so long as they have left some verbatim record whether it be transcripts, interviews, letters, diaries, or journals (Zullow, Oettingen, Peterson & Seligman, 1988).

EXPLANATORY STYLE TEST

By this point, you may think that you have a pretty good idea what your explanatory style is. To garner a deeper understanding you can take one of the many explanatory style tests online (often referred to as **learned optimism** tests), most of which are adapted from that of Dr. Martin Seligman. But why is it important to know your explanatory style? This habitual way in which people explain causes has been used to predict depression, achievement, and health, with a pessimistic style predicting poor outcomes (Zullow, Oettingen, Peterson, Seligman, 1988).

According to Seligman (1990) learned helplessness has negative effects similar to depression – the belief that in the face of uncontrollable events, individual actions do not matter. Fortunately, there are ways we can unlearn this helplessness and actively learn optimism.

Remember when you complete an explanatory style test there are no right or wrong answers. The best way to recognize and change your style is to respond honestly. The Authentic Happiness **test center** provides an excellent optimism test formulated by Dr. Martin Seligman. On completion of the 32 question test, you will be provided with a thorough explanation and breakdown of your results in relation to permanence and pervasiveness.

Seligman's website also provides a wealth of other tests and questionnaires ranging from life satisfaction to motivation and everything in between. Completing this 48 question **test** by Stanford University should take around 15 minutes. On completion, you will be given scores based on positive and negative permanence, pervasiveness, personalization, and a cumulative overall score.

KOHLBERG'S STAGES OF MORAL DEVELOPMENT

Kohlberg's theory of moral development states that we progress through three levels of moral thinking that build on our cognitive development.

KEY POINTS

- **Lawrence Kohlberg** expanded on the earlier work of **cognitive** theorist Jean Piaget to explain the moral development of children, which he believed follows a series of stages.
- Kohlberg defined three levels of moral development: pre-conventional, conventional, and post-conventional. Each level has two distinct stages.
During the pre-conventional level, a child's sense of **morality** is externally controlled. Children accept and believe the rules of **authority** figures, such as parent and teachers, and they judge an action based on its consequences.
- During the conventional level, an individual's sense of morality is tied to personal and societal relationships. Children continue to accept the rules of authority figures, but this is now because they believe that this is necessary to ensure positive relationships and societal order.
- During the post-conventional level, a person's sense of morality is defined in terms of **more** abstract principles and values. People now believe that some laws are unjust and should be changed or eliminated.
- Kohlberg's **theory** has been criticized for its cultural and gendered **bias** toward white, upper-class men and boys. It also fails to account for inconsistencies within moral judgments.

Lawrence Kohlberg expanded on the earlier work of cognitive theorist Jean Piaget to explain the moral development of children. Kohlberg believed that moral development, like **cognitive development**, follows a series of stages. He used the idea of moral dilemmas—stories that present conflicting ideas about two moral values—to teach 10 to 16 year-old boys about morality and values. The best known moral dilemma created by Kohlberg is the “Heinz” dilemma, which discusses the idea of obeying the law versus saving a life. Kohlberg emphasized that it is the way an individual **reasons** about a dilemma that determines positive moral development. After presenting people with various moral dilemmas, Kohlberg reviewed people's responses and placed them in different stages of moral reasoning.

KOHLBERG'S STAGES OF MORAL DEVELOPMENT

Kohlberg identified three levels of moral reasoning: pre-conventional, conventional, and post-conventional. Each level is associated with increasingly complex stages of moral development. According to Kohlberg, an individual progresses from the capacity for pre-conventional morality (before age 9) to the capacity for conventional morality (early adolescence), and toward attaining post-conventional morality (once Piaget's idea of formal operational thought is attained), which only a few fully achieve. Each level of morality contains two stages, which provide the basis for moral development in various contexts.

LEVEL 1. PRECONVENTIONAL MORALITY

The earliest stages of moral development, obedience and punishment, are especially common in young children, but adults are also capable of expressing this type of reasoning. At this stage, Kohlberg says, people see rules as fixed and absolute.⁶ Obeying the rules is important because it is a means to avoid punishment. At the individualism and exchange stage of moral development, children account for individual points of view and judge actions based on how they serve individual needs. In the Heinz dilemma, children argued that the best course of action was the choice that best served Heinz's needs. Reciprocity is possible at this point in moral development, but only if it serves one's own interests.

LEVEL 2. CONVENTIONAL MORALITY

Often referred to as the "good boy-good girl" orientation, the stage of the interpersonal relationship of moral development is focused on living up to social expectations and roles.⁶ There is an emphasis on conformity, being "nice," and consideration of how choices influence relationships. This stage is focused on maintaining social order. At this stage of moral development, people begin to consider society as a whole when making judgments. The focus is on maintaining law and order by following the rules, doing one's duty, and respecting authority.

LEVEL 3. POSTCONVENTIONAL MORALITY

The ideas of a social contract and individual rights cause people in the next stage to begin to account for the differing values, opinions, and beliefs of other people.⁶ Rules of law are important for maintaining a society, but members of the society should agree upon these standards. Kohlberg's final level of moral reasoning is based on universal ethical principles and abstract reasoning. At this stage, people follow these internalized principles of justice, even if they conflict with laws and rules.

CRITICISMS

Kohlberg's theory is concerned with moral thinking, but there is a big difference between knowing what we ought to do versus our actual actions. Moral reasoning, therefore, may not lead to moral behavior. This is just one of the many criticisms of Kohlberg's theory. Critics have pointed out that Kohlberg's theory of moral development overemphasizes the concept of justice when making moral choices. Factors such as compassion, caring, and other interpersonal feelings may play an important part in moral reasoning.⁷

Does Kohlberg's theory overemphasize Western philosophy? Individualist cultures emphasize personal rights, while collectivist cultures stress the importance of society and community. Eastern, collectivist cultures may have different moral outlooks that Kohlberg's theory does not take into account. Were Kohlberg's dilemmas applicable? Most of his subjects were children under the age of 16 who obviously had no experience with marriage. The Heinz dilemma may have been too abstract for these children to understand, and a scenario more applicable to their everyday concerns might have led to different results.

Kohlberg's critics, including Carol Gilligan, have suggested that Kohlberg's theory was gender-biased since all of the subjects in his sample were male.⁸ Kohlberg believed that women tended to remain at the third level of moral development because they place a stronger emphasis on things such as social relationships and the welfare of others. Gilligan instead suggested that Kohlberg's theory overemphasizes concepts such as justice and does not adequately address moral reasoning founded on the principles and ethics of caring and concern for others.

WHAT IS BASIC MOTIVATIONAL CONCEPTS: INSTINCTS, NEEDS, DRIVES, AROUSAL, INCENTIVES, MOTIVATIONAL CYCLE. APPROACHES TO THE STUDY OF MOTIVATION: PSYCHOANALYTICAL, ETHOLOGICAL, S-R COGNITIVE, HUMANISTIC?

BASIC MOTIVATIONAL CONCEPTS: INSTINCTS, NEEDS, DRIVES, AROUSAL, INCENTIVES, MOTIVATIONAL CYCLE. APPROACHES TO THE STUDY OF MOTIVATION: PSYCHOANALYTICAL, ETHOLOGICAL, S-R COGNITIVE, HUMANISTIC

Basic motivational concepts: Instincts, Needs, Drives, Arousal, Incentives, Motivational Cycle

CONCEPT OF MOTIVATION:

The term motivation is derived from the word 'motive'. The word 'motive' as a noun means an objective, as a verb this word means moving into action. Therefore, motives are forces which induce people to act in a way, so as to ensure the fulfillment of a particular human need at a time. Behind every human action there is a motive. Therefore, management must provide motives to people to make them work for the organization. Motivation may be defined as a planned managerial process, which stimulates people to work to the best of their capabilities, by providing them with motives, which are based on their unfulfilled needs.

"Motivation means a process of stimulating people to action to accomplish desired goods." –William G. Scott "Motivation is the process of attempting to influence others to do your will through the possibility of gain or reward." – Flippo Motivation is, in fact, pressing the right button to get the desired human behaviour. Motivation is no doubt an essential ingredient of any Organisation. It is the psychological technique which really executes the plans and policies through the efforts of others.

FOLLOWING ARE THE OUTSTANDING FEATURES OF THE CONCEPT OF MOTIVATION:

1. Motivation is a personal and internal feeling:

Motivation is a psychological phenomenon which generates within an individual.

2. MOTIVATION IS NEED BASED:

If there are no needs of an individual, the process of motivation fails. It is a behavioural concept that directs human behaviour towards certain goals.

3. MOTIVATION IS A CONTINUOUS PROCESS:

Because human wants are unlimited, therefore motivation is an ongoing process

4. MOTIVATION MAY BE POSITIVE OR NEGATIVE:

A positive motivation promotes incentives to people while a negative motivation threatens the enforcement of disincentives.

5. MOTIVATION IS A PLANNED PROCESS:

People differ in their approach, to respond to the process of motivation; as no two individuals could be motivated in an exactly similar manner. Accordingly, motivation is a psychological concept and a complex process.

6. MOTIVATION IS DIFFERENT FROM JOB SATISFACTION:

THE PROCESS OF MOTIVATION IS ILLUSTRATED IN THE FIGURE GIVEN BELOW:

Figure 15.1 shows an employee has a need or urge for promotion to a higher position. If this need is strong, the employee will fix his goal and find alternatives to reach the goal.

The employee might have two alternatives, namely,

- (i) hard work and
- (ii) enhancement of qualification (e.g., getting MBA) and hard work.

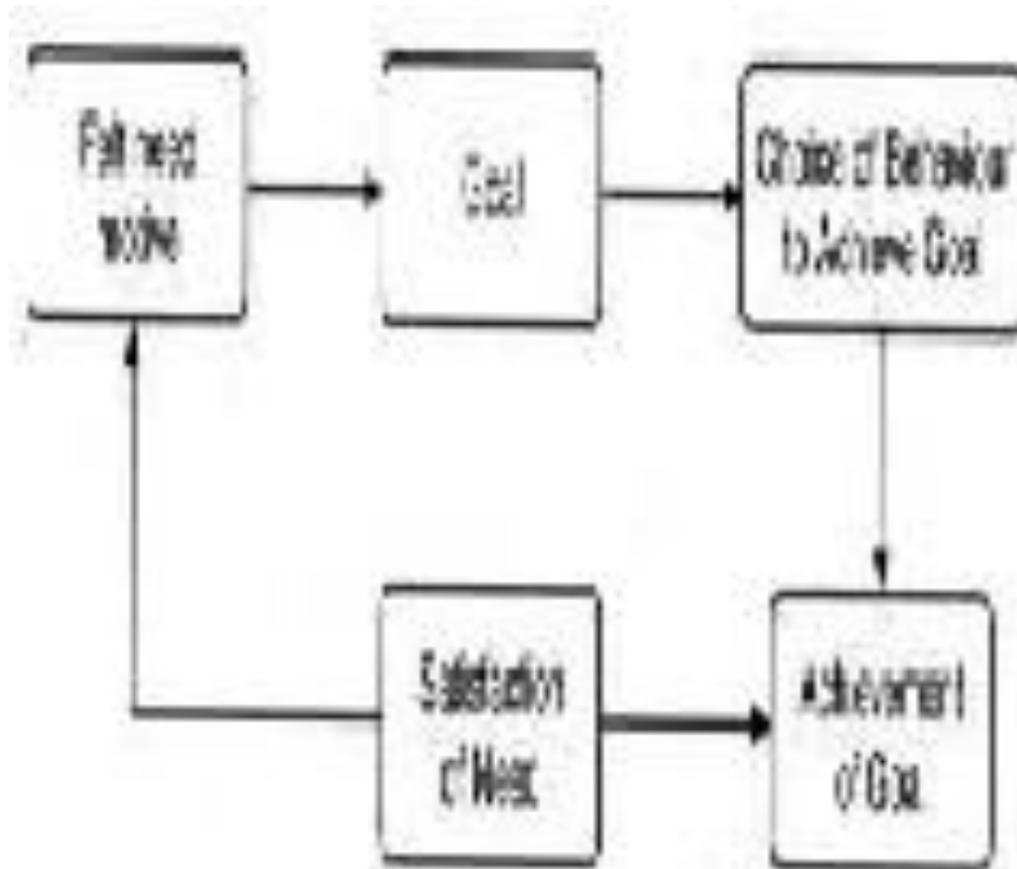


Fig. 15.1 The Process of Motivation

enhancement of qualification (e.g., getting MBA) and hard work. He might choose the second alternative and succeed in getting promotion (goal achievement) thus, his need for promotion would be satisfied and he would start again for the satisfaction of a new need.

SIGNIFICANCE/IMPORTANCE OF MOTIVATION:

Motivation is an integral part of the process of direction.

WHILE DIRECTING HIS SUBORDINATE, A MANAGER MUST CREATE AND SUSTAIN IN THEM THE DESIRE TO WORK FOR THE SPECIFIED OBJECTIVES:

1. High Efficiency:

A good motivational system releases the immense untapped reservoirs of physical and mental capabilities. A number of studies have shown that motivation plays a crucial role in determining the level of performance. "Poorly motivated people can nullify the soundest organisation," said Allen.

By satisfying human needs motivation helps in increasing productivity. Better utilisation of resources lowers cost of operations. Motivation is always goal directed. Therefore, higher the level of motivation, greater is the degree of goal accomplishment.

2. BETTER IMAGE:

A firm that provides opportunities for financial and personal advancement has a better image in the employment market. People prefer to work for an enterprise because of opportunity for development, and sympathetic outlook. This helps in attracting qualified personnel and simplifies the staffing function.

3. FACILITATES CHANGE:

Effective motivation helps to overcome resistance to change and negative attitude on the part of employees like restriction of output. Satisfied workers take interest in new organisational goals and are more receptive to changes that management wants to introduce in order to improve efficiency of operations.

4. HUMAN RELATIONS:

Effective motivation creates job satisfaction which results in cordial relations between employer and employees. Industrial disputes, labour absenteeism and turnover are reduced with consequent benefits. Motivation helps to solve the central problem of management, i.e., effective use of human resources. Without motivation the workers may not put their best efforts and may seek satisfaction of their needs outside the organisation. The success of any organisation depends upon the optimum utilisation of resources. The utilisation of physical resources depends upon the ability to work and the willingness to work of the employees. In practice, ability is not the problem but necessary will to work is lacking. Motivation is the main tool for building such a will. It is for this reason that Rensis Likert said, "Motivation is the core of management." It is the key to management in action.

MOTIVATION: NEED FOR ACHIEVEMENT

Have you ever met people who are always interested in improving themselves (and actually others as well), to become faster, smarter and more productive than ever? It seems they cannot stop developing themselves to be better; they are eager for achievements and enhancements. To tell you the truth, I also share this drive and would like to provide a "how-to" that can help readers motivate and manage these achievers, as they are called in the Need Theory model, more efficiently and less stressfully.

What Motivates People with the Need for Achievement	How to Deal with This Drive
<p>Be better than yourself</p> <ul style="list-style-type: none">• They develop themselves;• May compare past and current achievements;• Winning is more important than participating;	<ul style="list-style-type: none">• Provide a clear plan/path for professional growth;• Define how the person can build his/her career within the project/program;• Give an opportunity for them to attend conferences and trainings;• Set clear goals and meaningful KPIs;

<p>Be better than others</p> <ul style="list-style-type: none"> • Compare their results to others; • Show interest in how others are progressing; • Don't like when others make fun of them 	<ul style="list-style-type: none"> • Share what the evaluation criteria is for team members; • Explain why someone is/is not getting something; • Ensure that the bonuses and appraisal systems are transparent; • Communicate openly about the achievements of team members;
<p>Challenging tasks</p> <ul style="list-style-type: none"> • The task should be difficult, but achievable • Can do monotonous work, 	<ul style="list-style-type: none"> • Clarify how the task impacts the project or program; • Make sure the person is clear on why it is important that they are doing the task;
<p>when it's a part of an interesting endeavor;</p> <ul style="list-style-type: none"> • Prefer to fulfill tasks step by step; 	<ul style="list-style-type: none"> • Check that the task corresponds to the person's skills;
<p>A stable and long-term career</p> <ul style="list-style-type: none"> • Interested in becoming a good professional in one area, rather than a jack-of-all-trades 	<ul style="list-style-type: none"> • Provide opportunities to deepen their knowledge; • Confirm that the project/program is stable enough for long-term career planning

MOTIVATION: NEED FOR AFFILIATION

Sometimes we have to make hard choices and decide: what is more important? Is it to A. get the desired result, or B. maintain good relationships with your colleagues? For people with a strong need for achievement, the "result" answer is obvious. But for the ones with a need for affiliation, relations usually matter more. Let's see what else motivates people with this drive.

What Motivates People with the Need for Affiliation	How to Deal with This Drive
<p>Find new friends</p> <ul style="list-style-type: none"> • The possibility to meet 	<p>Allow them to contact new people from other teams and the client side. They are good communicators and are able to set up connections between people;</p>
<p>new people;</p> <ul style="list-style-type: none"> • Can easily start conversation with strangers; • Are open-minded and easy-going. 	<ul style="list-style-type: none"> • Invite to kick-off meetings; • Involve them in onboarding new team members;

<p>Stay in touch with friends</p> <ul style="list-style-type: none"> • Enjoy calling and writing to people they know; • Like showing they care and when others care about them; • Prefer to work with friends more than with experts; • Have lots of friends in different areas and companies. 	<ul style="list-style-type: none"> • Engage in mentoring and coaching activities; • Make sure they have enough interactions with other project/team members (they like face-to-face meetings, calls and correspondence – the more communication options they have, the happier they feel); • Show empathy and interest; • Allow them to assist other team members when they are able;
<p>Spend time together with people</p> <p>Know how to have fun and inspire people around them;</p> <ul style="list-style-type: none"> • Are able to provide support and encouragement; • Loyal to different points of view; • Appreciate teamwork; • Don't mind doing routine/monotonous work; • Can easily practice the Management 3.0 style (even without knowing what it is). 	<ul style="list-style-type: none"> • Assign them tasks that require good collaboration skills; • Can experience stress in an unfriendly/competitive atmosphere; Try to avoid involving them in confrontations/conflict, as they can feel discomfort because of it; • Be careful with negative feedback, especially when sharing it publicly – they can take it personally and become deeply hurt; • Encourage them to share their ideas and contribute to team activities, as they will be grateful for this; • Show appreciation for their good results at work, as they will be glad to hear "thank you"; • Involve them in social and • volunteering activities, as they can bring lots of value.

Interesting fact: parents with prominent affiliation drives, usually raise children with the need for achievement drive.

MOTIVATION: NEED FOR POWER

Do you know people who often use the following words: influence, control, status, struggle, discipline, subordination and leadership? These kinds of people also find pleasure in vertical career development. They like to manage others and they are driven by power.

What Motivates People with the Need for Power	How to Deal with This Drive
<p>Control</p> <ul style="list-style-type: none"> • Opportunities to exude control over 	<ul style="list-style-type: none"> • Provide them with opportunities to manage others;

<p>other people;</p> <ul style="list-style-type: none"> • Given power to delegate tasks; • Enjoy doing multiple activities at once; • Like to know what is going on around them; • Need to keep track of their own and others' activities; 	<ul style="list-style-type: none"> • "Career development" to them means increasing the number of people they manage; • Give them some freedom in decision-making; • Assign multiple tasks; • Don't assign tasks directly to their subordinates; • Consult them and ask for advice;
<p>Influence</p> <ul style="list-style-type: none"> • Need to see the reactions to their ideas or actions; 	<ul style="list-style-type: none"> • Allow them to influence you and show your reaction; • Direct their power games into
<ul style="list-style-type: none"> • Care about how other people perceive them; • Can find pleasure in influencing the emotions of others; • Enjoy intrigues, power games. 	<p>constructive areas/context;</p> <ul style="list-style-type: none"> • Develop your own management style, soft and hard skills – they need strong leaders around them; • Pay attention to them, and don't ignore their ideas/actions;
<p>Leadership</p> <ul style="list-style-type: none"> • Enjoy being followed; • Are pleased when praised; • Glad to lead others; • Like public speaking. 	<ul style="list-style-type: none"> • Delegate them to give presentations to the public; • Publicly announce their successes; • Set community creation tasks for them; • Allow them to train and mentor employees;
<p>Status recognition</p> <p>Social success means a lot to them;</p> <p>Collect status artifacts; Count their victories;</p> <p><input type="checkbox"/> Like to be engaged in volunteering activities.</p>	<ul style="list-style-type: none"> • Make sure their position has the corresponding status environment; • Provide them opportunities to join corporate clubs, non-public communities, and other special events.

MOTIVATION AND DRIVE

A person's motivation is a combination of desire and energy directed at achieving a goal. It is the cause of action. Influencing someone's motivation means getting them to want to do what you know must be done. (U.S. Army Handbook, 1973).

A person's motivation depends upon two things:

- **The strength of certain needs.** For example, you are hungry, but you must have a task completed by a nearing deadline. If you are starving you will eat. If you are slightly hungry you will finish the task at hand.
- **The perception that taking a certain action will help satisfy those needs.** For example, you have two burning needs – the desire to complete the task and the desire to go to lunch. Your perception of how you view those two needs will determine which one takes priority. If you believe that you could be fired for not completing the task, you will probably put off lunch and complete the task. If you believe that you will not get into trouble or finish the task in time, then you will likely go to lunch.

Forces, such as beliefs, values, interests, fear, and worthy causes can motivate people. Some of these forces are internal, such as needs, interests, and beliefs. Others are external, such as danger, the environment, or pressure from a loved one. There is no simple formula for motivation – you must keep an open viewpoint on human nature. There is a complex array of forces steering the direction of each person and these forces cannot always be seen or studied. In addition, if the same forces are steering two different people, each one may act differently. Knowing that each person may react to different needs will guide your decisions and actions in certain situations.

GUIDELINES FOR MOTIVATION

As a leader you have the power to influence motivation. The following guidelines form a basic view of motivation (U.S. Army Handbook, 1973). They will help guide your decision making process:

ALLOW THE NEEDS OF YOUR TEAM TO COINCIDE WITH THE NEEDS OF YOUR ORGANIZATION

Nearly everyone is influenced by the needs for job security, promotion, raises, and approval of their peers and leaders. Internal forces, such as values, morals, and ethics, also influence them. Likewise, the organization needs good people in a wide variety of jobs. Ensure that your team is trained, encouraged, and has opportunities to advance. Also, ensure that the way you conduct business has the same values, moral, and ethic principles that you seek in others. If you conduct business in a dishonest manner, your team will be dishonest to you; for that will be the kind of people that you will attract.

REWARD GOOD BEHAVIOR

Although a certificate, letter, or a thank you may seem small and insignificant, they can be powerful motivators. The reward should be specific and prompt. Do not say something general, such as “for doing a good job,” rather you should cite the specific action that made you believe it was indeed a good job.

SET THE EXAMPLE

You must be the role model that you want others to grow into. As Mahatma Gandhi said, “We must become the change we want to see.”

DEVELOP MORALE AND ESPRIT DE CORPS

Morale is the mental, emotional, and spiritual state of a person. Almost everything you do will have an impact on your organization. You should always be aware how your actions and decisions might affect it.

DRIVE

This lively RSA Animate, based on Daniel Pink's book, *Drive: The Surprising Truth About What Motivates Us*, illustrates some of the hidden truths behind what really motivates us: The most common form of culture in modern organizations is often referred to as informed acquiescence. It is rule-based in that the workers learn the rules and agree to abide by them. Rules normally work their way from the top-down in a fairly controllable and predictable manner. Thus, a large organization can become management-orientated that often leads to bureaucracy. And it is this bureaucracy that tends to slow things down.

However, many of the leading organizations are becoming more value-based self-governance in that rather than the workforce being governed by "should," they act upon "can" (Seidman, 2007). They have a small core set of rules that are valued by the workforce. Rather than being motivated to do better, they are inspired. Motivation is controlled somewhat by outside factors, while inspire (similar to "esprit") is more inside the individual's soul or spirit and is usually considered the greatest motivator. Being freed from the crippling pace of bureaucracy, value-based companies operate and move faster.

Probably no organization is based solely on one or the other, but rather someplace on a continuum, with the better and faster ones being more value-based. Nordstrom is one good example of an organization that leans heavily towards value-based self-governance. For example, Nordstrom's rule is to "Use good judgment in all situations." Employees are encouraged to ask questions from anyone because they believe that all information should be accessible to everyone, regardless of seniority or status.

MOTIVATION AS AROUSAL

A second biological approach to the study of human motivation has been the study of mechanisms that change the arousal level of the organism. Early research on this topic emphasized the essential equivalency of changes in arousal, changes in emotion, and changes in motivation. It was proposed that emotional expressions and the motivation of behaviour are the observable manifestations of changes in arousal level.

One of the earliest arousal theories suggested that one's perception of emotion depends upon the bodily responses the individual makes to a specific, arousing situation. This theory became known as the James-Lange theory of emotion after the two researchers, William James and the Danish physician Carl Lange, who independently proposed it in 1884 and 1885 respectively.

The theory argued, for example, that experiencing a dangerous event such as an automobile accident leads to bodily changes such as increased breathing and heart rate, increased adrenaline output, and so forth. These changes are detected by the brain and the emotion appropriate to the situation is experienced. In the example of the automobile accident, fear might be experienced as a result of these bodily changes.

THE CANNON-BARD THEORY

Walter B. Cannon, a Harvard physiologist, questioned the James-Lange theory on the basis of a

number of observations; he noted that the feedback from bodily changes can be eliminated without eliminating emotion; that the bodily changes associated with many quite different emotional states are similar, making it unlikely that these changes serve to produce particular emotions; that the organs supposedly providing the feedback to the brain concerning these bodily changes are not very sensitive; and that these bodily changes occur too slowly to account for experienced emotions. Cannon and a colleague, Philip Bard, proposed an alternative arousal theory, subsequently known as the Cannon-Bard theory. According to this approach, the experience of an event, such as the automobile accident mentioned earlier, leads to the simultaneous determination of emotion and changes to the body. The brain, upon receiving information from the senses, interprets an event as emotional while at the same time preparing the body to deal with the new situation.

SLEEP PROCESSES AND STRESS REACTIONS

Research on arousal mechanisms of motivation has furthered understanding of both sleep processes and stress reactions. In the case of sleep, arousal levels generally seem lower than during waking; however, during one stage of sleep arousal levels appear highly similar to those in the waking state. Sleep itself may be considered a motivational state. The biological motivation to sleep can become so overpowering that individuals can fall asleep while driving an automobile or while engaged in dangerous tasks.

Five stages of sleep have been defined using the electroencephalograph (EEG). The EEG records the electrical activity of neurons in the outermost portion of the brain known as the cerebral cortex. According to EEG-based findings, everyone cycles through five stages during sleep. A complete cycle averages approximately 90 minutes. The two most interesting stages of sleep from a motivational point of view are stages 4 and 5.

Stage 4 represents the deepest sleep in that the brain-wave activity as measured by the EEG is farthest from the activity seen when a person is awake. The brain-wave pattern is characterized by delta waves, which are large, irregular, and slow; breathing, heart rate, and blood pressure are also reduced. Because the overall activity of the individual in stage 4 is greatly reduced, it has been suggested by some researchers that stage 4 (and perhaps also stage 3) sleep serves a restorative function. However, a potential problem with such an explanation is that stage 4 sleep drops dramatically after age 30 and may be entirely absent in some people aged 50 or over who nevertheless appear to be perfectly healthy. Additionally, studies have shown that in the typical individual physical exhaustion does not lead to increases in stage 4 sleep as might be expected if it were serving a restorative function. The purpose of stage 4 sleep remains unknown.

Stage 5 sleep is also known as rapid eye movement (REM) sleep because during this stage the eyes begin to move rapidly under the eyelids. Interest in stage 5 sleep has been considerable since it was discovered that most, if not all, dreaming occurs during this stage. During stage 5 sleep the EEG pattern of brain-wave activity appears very similar to the brain-wave activity of an awake, alert person. Breathing, heart rate, and blood pressure rise from the low levels observed during stage 4 and can fluctuate rapidly.

In addition to eye movements, fast, small, and irregular brain waves, and autonomic changes indicative of an aroused state, individuals in stage 5 sleep display a large loss in skeletal muscle tone that amounts to a temporary paralysis. Researchers have suggested that the muscle paralysis prevents the "acting out" of our dreams. Another aspect of arousal processes concerns the high levels of arousal leading to a triggering of the stress reaction. The stress reaction can be triggered

by a challenge to the physical integrity of the body, or it can occur as a result of some psychological challenge. Furthermore, the body appears to react in a similar fashion regardless of whether the demands made upon it are physical or psychological.

Hans Selye, a Viennese-born Canadian medical researcher, showed that stressors trigger a chain of processes that begins with what is called the alarm reaction, may proceed to a second stage called the stage of resistance, and, if the stressor has still not been removed, may lead to a final stage called exhaustion.

BIOLOGICAL MONITORING SYSTEMS

For some basic motives such as hunger, thirst, and sex, a biological approach emphasizing regulatory mechanisms has dominated the thinking of researchers. The fundamental premise has been that such basic motives are homeostatically regulated—that is, the nervous system monitors levels of energy, fluid balance, and hormone production (in the case of sex) and alters motivation when these levels deviate too far from some optimum level.

HUNGER

The question of why we eat when we do appears to involve two separate mechanisms. The first mechanism, typically called short-term regulation, attempts to take in sufficient energy to balance what is being expended. It is usually assumed that time between meals and meal size are determined by this short-term mechanism. A second mechanism, called long-term regulation, is directed toward storing away sufficient energy for possible later use should the short-term mechanism fail to adequately replenish energy expended. Energy for long-term use is stored in the form of fat within the fat cells of the body. Short-term regulation processes have generally been assumed to monitor the blood glucose (blood sugar) level and to initiate eating when this level falls below some predetermined optimum. Long-term regulation processes appear to monitor fat levels and to initiate eating when fat stores fall below some optimal level.

THIRST

Processes similar to the physiological control mechanisms of hunger are thought to regulate thirst motivation and sexual behaviour. In the case of thirst, the desire to drink appears to be initiated by fluid loss from within specialized brain cells known as osmoreceptors and also from fluid loss from the area outside of cells, such as from bleeding. Thirst, therefore, would seem to be triggered by mechanisms controlling the fluid integrity both within and around the cells of the body. Cells within the hypothalamus also seem to be involved in the control of thirst motivation.

SEXUAL MOTIVATION

In most animals sexual motivation is under stricter hormonal control than is the case in humans. The female of most species is not interested in sexual behaviour until cyclic hormonal changes produce estrus. The male, however, is usually sexually ready but is prevented from engaging in sexual behaviour by the female until estrus occurs. Research indicates that the anterior (front) portion of the hypothalamus is involved with the estrous cycle of female mammals; it has been demonstrated that destruction of these hypothalamus cells eliminates estrus. Similarly, destruction of the anterior region of the hypothalamus reduces or eliminates sexual behaviour in male rats. According to the arousal theory of motivation, each person has a unique arousal level that is right for them. When our arousal levels drop below these personalized optimal levels, we seek some sort of stimulation to elevate them.

For example, if our levels drop too low we might seek stimulation by going out to a nightclub with friends. If these levels become too elevated and we become overstimulated, we might be motivated to select a relaxing activity such as going for a walk or taking a nap. One of the key assumptions of the arousal theory is that we are motivated to pursue actions that help us maintain an ideal balance. When we become overly aroused, we seek soothing activities that help calm and relax us. If we become bored, we head in search of more invigorating activities that will energize and arouse us. It's all about striking the right balance, but that balance is unique to each individual. Arousal theory shares some commonalities with drive-reduction theory. But instead of focusing on reducing tension, arousal theory suggests that we are motivated to maintain an ideal level of arousal.

AROUSAL LEVELS ARE HIGHLY INDIVIDUAL

Optimal arousal levels vary from one individual to the next. There are many factors that might influence each person's optimal arousal levels, including genetics, experience, and current mood. Your arousal preferences, in general, may be specified by your genetic makeup, but environmental factors can also play a role in how you are feeling at any given moment. One person may have very low arousal needs while another individual might require very high levels.

BEHAVIOR IS MOTIVATED BY AROUSAL LEVELS

The person with low arousal needs might be motivated to pursue simple activities such as crocheting or watching a movie in order to maintain their arousal levels. The individual with high arousal needs, on the other hand, might be motivated to seek risky or thrilling activities such as motorcycle racing or skydiving in order to maintain his or her ideal levels.

IF YOU NEED TO RAISE YOUR AROUSAL LEVELS, YOU MIGHT:

- Engage in physical activity
- Socialize with friends
- Try something new and exciting
- Watch an action-packed movie

IF YOU NEED TO LOWER YOUR AROUSAL LEVELS, YOU MIGHT:

- Enjoy a relaxing hobby
- Read a book
- Take a bath
- Take a nap

No matter what your arousal needs are, you will be motivated to act in order to maintain these levels. If you need more arousal, you will pursue actions designed to raise those levels. If you need less, you will seek out ways to calm down and relax.

AROUSAL INFLUENCES PERFORMANCE

One of the assertions of the arousal theory of motivation is that our levels of arousal can influence our performance. But again, balance is key. Higher arousal levels can sometimes help us perform better, but it can also impair performance if arousal levels are too high. This concept is commonly referred to as the Yerkes-Dodson Law. The law states that increased levels of arousal will improve

performance, but only up until the optimum arousal level is reached. At that point, performance begins to suffer as arousal levels increase. Additionally, if you're doing a complex task, high or low levels of arousal will affect you more than if you're doing something simple.

INCENTIVE MOTIVATION THEORY

The incentive theory of motivation suggests that people are motivated by a drive for incentives and reinforcement. It also proposes that people behave in a way that they believe will result in a reward and avoid actions that may entail punishment. Employees might behave differently in similar situations depending on the incentives available. For example, an employee might work harder on a project to earn a good review or to avoid a poor review than if they don't receive a review at all. Their motivation is their desire to receive a reward or avoid punishment via a performance review at the end of the project.

The value of the same incentive may change depending on the time and circumstance. People may value similar incentives differently. Psychological and social factors can have a role in determining which people have a motivation for different incentives. Incentives only work as motivational tools if individuals place value on the reward they will receive for their actions. Incentives in the workplace, as in other facets of life, can also be positive or negative:

- **Positive incentives:** Provide positive assurance that an employee will receive something they desire in exchange for doing their work well. Examples of positive incentives include recognition, promotions, raises and so forth.
- **Negative incentives:** Correct mistakes or discourage certain behaviors. Negative incentives include reprimands, demotions, pay decreases and other kinds of penalties.

DIFFERENT WORKPLACE INCENTIVES

Monetary and non-monetary are the two main categories of workplace incentives. Monetary incentives are straightforward— many employees work harder if they have a chance to receive a raise or have a higher salary. Financial compensation can be psychologically rewarding, but it also helps employees to feel secure within the company and their roles.

Non-monetary incentives include a range of types:

- Job security
- Recognition
- Professional development
- Promotion

JOB SECURITY

Job security is one form of non-monetary incentive that can motivate people at work. For example, receiving tenure or ending a probationary period can make someone feel more secure and motivated to contribute to the company or organization. Once they feel like their contributions matter, they may work harder to help the business excel. You can reinforce job security by giving annual performance reviews in which you offer positive reinforcement and constructive feedback.

RECOGNITION

Recognition is also an important form of non-monetary workplace incentives. Employers may offer rewards for hard work, achieving a goal or working with the company for so many years. In many

cases, companies offer a monetary reward along with recognition. An employee of the month award is a common recognition that many companies use. Another type of small recognition could include praising an employee during a team meeting. Publicly praising an employee for their hard work can also show other team members the work ethic they should strive to meet.

PROFESSIONAL DEVELOPMENT

Professional development opportunities can also provide incentives to employees. Developing their skills can be an important motivator. Employers may offer tuition reimbursement, send employees to conferences or seminars or develop an in-house training program for developing skills. You could also begin a shadowing program in which employees in your department work with colleagues in another area of the company to learn more about the organizational process.

PROMOTION

The opportunity for promotion is an important workplace motivator. Promotions offer the opportunity for growth and advancement and can be very satisfying and motivating. They also help employees excel in their professional development. When an employee receives a promotion, they usually have a higher sense of job security. Employees usually receive promotions at the same time as a raise.

APPLYING THE INCENTIVE THEORY OF MOTIVATION IN YOUR CAREER

Understanding how your core values affect your motivations can help you excel in your career. Core values are the ideals, beliefs and personal ethics that guide your decision-making process. Determining what your core values are can help you better understand what kinds of incentives you respond best to. You can then use those incentives to motivate yourself into achieving your professional goals. Understanding your core values can also help you find jobs and companies that align more closely with your ideals, which will make you happier and more productive at work.

To identify your core values, consider the following:

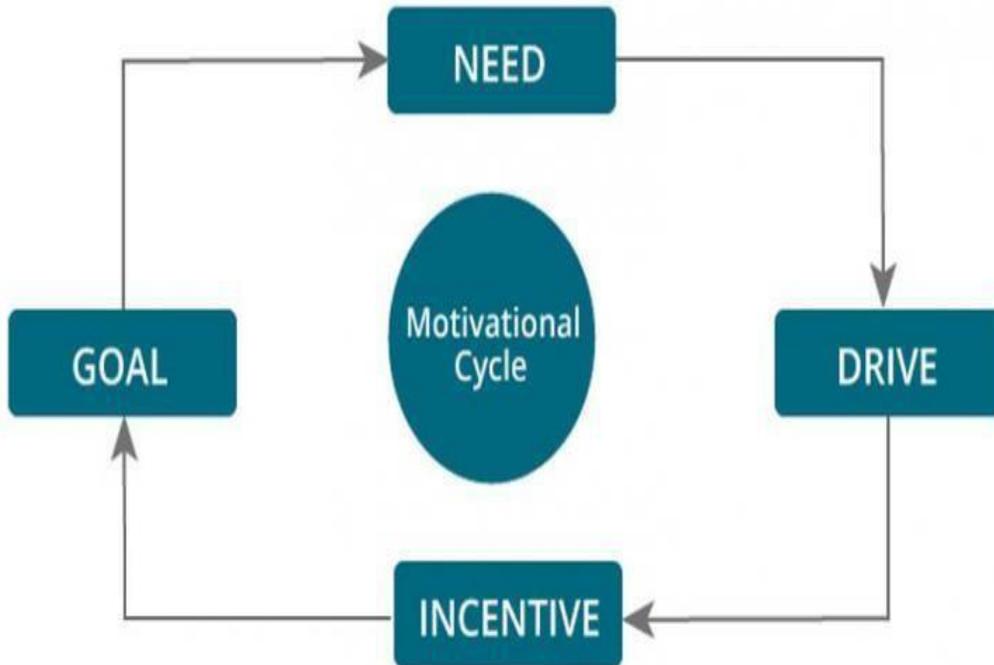
- Your favorite part about your current job
- The aspects of your job that make you happiest
- What you look forward to during your workday

By identifying your core values, you can make adjustments in your work life in response. For example, if you find that you are motivated by non-monetary incentives, you could ask your manager for a promotion or about opportunities offered by the company for professional development.

MOTIVATIONAL CYCLE

Motivation cycle is a transition of states within an organism that propels the organism toward the satisfaction of a particular need, where motivation itself is considered a hypothesized state. Psychologists use the concept of need to describe the motivational properties of behavior. The state of motivation is further comprised of four different states, which takes place in an organism to drive him towards each action. Each action is first initiated because of a particular need. The need drives the person into taking actions. Positive results, caused due to the actions, further acts as an incentive motivating a person towards the goal. But the individual can never stop after achieving a certain goal, and this phenomenon continues on and on. This phenomenon has been termed as Motivational Cycle. the person into taking actions. Positive results, caused due to the actions, further acts as an incentive motivating a person towards the goal. But the individual can never stop

after achieving a certain goal, and this phenomenon continues on and on. This phenomenon has been termed as Motivational Cycle.



NEED

A need is lack or deficit of some necessity. It's a state of physical deprivation that causes tension within an organism. The tension caused when the organism is deprived of basic necessities of life as food, water, and sleep, causes the internal environment of an organism to be imbalanced. The imbalance caused by the need arouses the organism to maintain its balance. For any goal directed behavior, need is the first condition or stimulating factor.

DRIVE

Need leads to drive, which is the second step towards achieving goal. Drive can be defined as the state of tension or arousal produced by need. The drive can also be considered as the original source of energy that activates an organism. For instance, when an organism is hungry and/or thirsty, the organism seeks to reduce this drive by eating and/or drinking. Drive acts as a strong persistent stimulus to push an organism towards its goal. It is the state of heightened tension leading to restless activity and preparatory behavior.

INCENTIVE

The object of the environment that activates, directs, and maintains behavior is called incentive. It can be anything as long as it has either positive or negative value in motivating behavior. The incentive theory rests on the assumption that the behaving organism is well aware of his actions and the consequences received as a result. The theory also understands incentives as the motivation, which a person has to achieve any particular goal object. The motivated behavior is directed towards incentive and getting closer to the incentive provides satisfaction of the aroused drive. For example: behavior like eating food is an incentive that reduces the drive of the person caused by the need to fulfill his hunger. The reduction of behavior then cuts off and restores balance in an organism.

ACCORDING TO HILGARD,

“The incentive is something in the external environment that satisfies the need and thus reduces the drive through consummative activity.”

GOAL

The reduction of tension in the body can be considered as the goal of any motivated behavior. Let's go back to the example of a hungry man. A hungry man eats food, and his body restores to a balanced condition. This then reduces the tension. This reduction of tension as a result of an energized activity is called goal. Once the goal has been completed, the organism is again ready for another goal-motivated behavior.

Goals might be both positive or negative. Positive goals are the ones that an organism tries to attain, such as sexual companionship, food, victory etc. Negative goals are the ones that an organism tries to escape from or avoid, such as embarrassing situations, punishments

These four steps continue on and on throughout the life-course of an organism. Because the needs are never ending, it leads to drive, which then leads to incentive and the goal.

For Example: The motivational cycle of the hungry man is over once when he eats and the goal is satisfied. But, the cycle will restart once the man gets hungry again. The cycle goes on and on only to end at the demise of an organism, at which point, the needs permanently stop. Motivational cycle means that behavior goes on in a sequence. Often times, a single motivated behavior can also fulfill multiple needs.

APPROACHES TO THE STUDY OF MOTIVATION

Two quite different theoretical approaches to human motivation are illustrated by psychoanalytic theory and social learning theory. The psychoanalytic theory of Freud emphasizes two basic drives: sex and aggression. These motives arise in infancy, but their expression is forbidden by parents, and repression occurs. A repressed tendency remains active, however, as an unconscious motive and finds expression in indirect or symbolic ways.

Social learning theory, on the other hand, focuses on patterns of behavior that are learned in coping with the environment; learning may occur through direct reinforcement or vicariously through observing the consequences of behavior modeled by another person. A cognitive process enables a person to foresee probable consequences and to alter behavior accordingly. Self-reinforcement, based on one's own standards of conduct, also provides an important motivational control.

The psychoanalytic and the social learning approaches to human motivation can be illustrated by considering aggression as a motive. Aggression, defined as behavior intended to injure another person or to destroy property, may be primarily hostile-aimed at inflicting injury or instrumental aimed at goals other than the victim's suffering. For Freudian theorists, aggression is an instinct or a frustration-produced drive; for social learning theorists it is a learned response. Evidence indicates that observing aggressive behavior, either live or filmed, is not cathartic; it tends to increase aggressiveness.

The humanistic approach to motivation primarily focuses on the motivation towards self-actualization. Thus Abraham Maslow in his need hierarchy theory places self-actualization at the peak. A minimum level of lower level needs satisfaction has to be attained before one could strive towards self-actualization. Apart from self-actualization, the other needs analysed by him are: need to explore the environment for competence and need to master the environment. Finally the homeostatic approach to motivation is based on behavior directed towards the reduction of tension in the system caused by the deprivation of a need. Thus according to this approach behavior is motivated towards

need- reduction.

THE PSYCHOANALYTIC THEORY OF MOTIVATION

One of the paradigms for the present study of human motivation is Psychoanalytic theory. Before going specifically into the details of the motivational theory, we shall attempt a survey of Psychoanalytic theory. Historical Background of Psychoanalysis Psychoanalysis was one of the most influential theories of 20th century, but it was no less controversial. Both chance and self-determinism played their role in the development of the theory. Chance, because Sigmund Freud, the father of psychoanalysis, had been dragged into the field of psychiatry for personal reasons. Determinism because, Freud's obsessive nature and "penchant for rejecting people who did not totally agree with him" largely determined the history of psychoanalysis (Boeree).

Freud owed influences both to his contemporaries in the field of psychiatry and to the scientific tradition of his time (Burns 70). Freud was born on the 6th of May 1856 in Freiberg in a small town in Moravia- a part of Austria- Hungary. Hailing from a middleclass Jewish family, he graduated in medicine and started his research career involving the dissection of nervous system of eels. Following this, he worked for the next six years in the Psychological Laboratory under Brucke, from where he acquired the outlines of physical sciences in general (Strachey 13). Here he worked on the anatomy of central nervous system.

earnings from laboratory studies, in 1882 he left Brucke and began to work at Vienna General Hospital. In 1885 he started work at Salpêtrière, the famous Parris Hospital for nervous diseases, with Charcot, the then reigning figure in psychiatry. Freud's career with Charcot influenced much of his later theories. In 1886 Freud returned to Vienna and got married. He set up a private clinic there to practise as a consultant for nervous diseases. Charles Darwin in *On the Origin of Species* rejected the special divine status of man, and henceforth mind became a legitimate subject for scientific investigation. The concept of psychic energy governed much of Freud's theories. The channelling out, displacement and sublimation of the energy played a key role in 'defence mechanisms' and neurotic behaviour in Freudian psychoanalysis. These concepts were much influenced by the then emerged notion of 'law of conservation of energy', according to which energy can neither be created nor be destroyed. Freud's application of these principles into his concept of psychic energy led him to the postulation of sublimation and displacement of that energy.

AN OUTLINE OF THE PSYCHOANALYTIC THEORY

The term psychoanalysis has three distinct meanings. Firstly it is a school of psychology, which emphasises psychic determinism and dynamics. As a school of psychology it also emphasises the importance of childhood experiences in moulding one's adult personality and behaviour. Secondly, psychoanalysis, with its emphasis on the role of unconscious in determining human behaviour, is a specialised method for investigating the unconscious mental activities. Finally, psychoanalysis is a therapeutic method for the investigation and treatment of mental disorders, especially the neurotic disorders (Page 179).

It is to be noted that much of psychoanalytic theory was derived from Freud's clinical experience in treating neurotic patients. So the theory focused more on the origin of abnormal behaviour in the formulation of the concept of mind. It is also to be considered that the distinction between sanity and insanity is not that of type but that of degree. The defence mechanisms that serve to compensate for the frustrations of the sane human, in exaggeration lead to the abnormality, of both

neurotic and psychotic. Hence it can be seen that clinical data may not be insufficient for the formulation of a theory of mind.

Motivation—Where There's a Will, There's a
Way

THE PSYCHOANALYTIC THEORY OF MOTIVATION

Freud's psychoanalytic theory offers the most general and well-known conception of the dynamics of motivation. This conception is so vast that it is meaningless to ask whether it is "correct" or "incorrect." Rather, some aspects of the theory have been shown to have reasonable validity, other facets have no empirical support at all, and still other propositions are beyond empirical test. In this chapter Freud's theory of motivation and subsequent modifications introduced by "ego psychologists" are presented. Conceptions devised by other theorists such as Adler, Jung, and Rank are ignored inasmuch as these have had less impact than Freud's ideas and the motivational aspects of these theories are not as clearly formulated. Following a description of the psychoanalytic approach, seven areas of research pertinent to Freud's conception are briefly examined. The research topics are instincts, aggression and catharsis, sexual behavior, dreams, defense mechanisms, delay of gratification, and cognitive styles. The first four of these areas (instincts, aggression, sex, and dreams) primarily pertain to id functioning, while the next grouping (defense, delay of gratification, and cognitive styles) concerns ego-mediated states and processes.

BASIC PRINCIPLES OF FREUD'S THEORY

It is useful to consider Freud's theory within the context of a biological and survival model. Given this viewpoint, which borrows much from Darwin, individuals are conceived as striving to satisfy personal needs within a world of limited and restricted resources. To satisfy these needs, behaviors must be undertaken that will lead to the desired goals. Virtually all such goals are located in the external world. Thus, the individual must adapt to, and function within, the world at hand. For example, consider a psychological analysis of how behavior is governed by the need for food. All organisms have a biological need to ingest food. This need makes itself known to the organism by causing discomfort. There is a limited supply of food in the external world, and organisms must compete for these resources. After the individual engages in the appropriate activities and eats, the internal stimulation and pain (e.g., hunger cramps) that accompany food deprivation cease. The organism then feels satisfied and remains in an unmotivated state or at rest until the onset of new hunger pains. These follow a cyclical pattern, again generating food-relevant behavior.

A SOCIAL-COGNITIVE APPROACH TO MOTIVATION

The task for investigators of motivation and personality is to identify major patterns of behavior and

link them to underlying psychological processes. In this article we.

- (a) describe a research-based model that accounts for major patterns of behavior,
- (b) examine the generality of this model—its utility for understanding domains beyond the ones in which it was originally developed, and
- (c) explore the broader implications of the model for motivational and personality processes. Toward this end, we begin by describing two major patterns of cognition-affect-behavior that we identified in our early work: the maladaptive "helpless" response and the more adaptive "mastery-oriented" response (Diener & Dweck, 1978, 1980; Dweck, 1975; Dweck & Reppucci, 1973).'

The helpless pattern, as will be seen, is characterized by an avoidance of challenge and a deterioration of performance in the face of obstacles. The mastery-oriented pattern, in contrast, involves the seeking of challenging tasks and the maintenance of effective striving under failure. Most interesting, our research with children has demonstrated that those who avoid challenge and show impairment in the face of difficulty are initially equal in ability to those who seek challenge and show persistence. Indeed some of the brightest, most skilled individuals exhibit the maladaptive pattern. Thus it cannot be said that it is simply those with weak skills or histories of failure who (appropriately) avoid difficult tasks or whose skills prove fragile in the face of difficulty. The puzzle, then, was why individuals of equal ability would show such marked performance differences in response to challenge.

Maladaptive Versus Adaptive Patterns: Cognitive, Affective, and Behavioral Components Why are the helpless and the mastery-oriented patterns considered to be maladaptive and adaptive, respectively, and why are they important? The helpless response as a characteristic style can be considered maladaptive because challenge and obstacles are inherent in most important pursuits. Indeed, one might ask, what valued long-term goal (e.g., pertaining to one's work, one's relationships, or one's moral strivings) does not at some point pose risks, throw up barriers, present dilemmas? A response pattern that deters individuals from confronting obstacles or that prevents them from functioning effectively in the face of difficulty must ultimately limit their attainments. The mastery-oriented pattern involves the seeking of challenging tasks and the generation of effective strategies in the face of obstacles. As a characteristic style, this enjoyment of challenge and willingness to sustain engagement with difficult tasks appears to be an adaptive stance toward valued goals. Of course, individuals need to be able to gauge when tasks should be avoided or abandoned (see Janoff-Bulman & Brickman, 1981); nonetheless, the ability to maintain a commitment to valued goals through periods of difficulty must maximize attainments in the long run. As we have noted, the helpless and the mastery-oriented patterns are two distinct, coherent patterns, with striking differences in the cognitions, affect, and behavior that characterize each. Because these patterns lie at the heart of our model, we shall describe them in some detail.

HUMANISTIC THEORY OF MOTIVATION

Humanistic theories of motivation are based on the idea that people also have strong cognitive reasons to perform various actions. This is famously illustrated in Abraham Maslow's hierarchy of needs, which presents different motivations at different levels. First, people are motivated to fulfill basic biological needs for food and shelter, as well as those of safety, love, and esteem. Once the lower level needs have been met, the primary motivator becomes the need for self-actualization, or the desire to fulfill one's individual potential.

WHAT IS EXPLORATORY BEHAVIOR AND CURIOSITY ZUCKERMAN'S SENSATION SEEKING ACHIEVEMENT, AFFILIATION AND POWER MOTIVATIONAL COMPETENCE SELF-REGULATION FLOW?

EXPLORATORY BEHAVIOR AND CURIOSITY ZUCKERMAN'S SENSATION SEEKING ACHIEVEMENT, AFFILIATION AND POWER MOTIVATIONAL COMPETENCE SELF-REGULATION FLOW

Exploratory behavior

EXPLORATION

Exploration is an information-gathering venture (e.g., mouthing and simple manipulation of objects) (Belsky and Most 1983). Through exploration children come to know their environments. Exploration dominates behavior for the first 9 months of life. By 12 months, play and exploration co-occur. By 18 months play accounts for more of the child's interactions with the environment than does exploration (Belsky and Most 1983). Exploration also precedes play to the extent that children of all ages must explore an object, or know its properties, before they can play with it. The knowledge resulting from exploration is basis for play.

EXPLORATORY BEHAVIOR

Exploratory behavior can be defined as behavior directed toward acquiring information about the environment. Exploration is generally considered to be different than simple ambulation, although in practice it is often difficult to completely separate one from the other. Harro (1993) has reviewed some of the common methods used to assess exploratory behavior, including the open field, elevated plus-maze, and hole-board test (which involves the measurement of head-dipping into an array of holes placed in an open field apparatus; see File and Wardill, 1975). It is important to note that behavior in these test situations reflects several factors besides exploration, including ambulatory tendencies and fear of novelty (neophobia).

IDENTITY

Identity exploration is a fundamental developmental task for adolescents and young adults. This exploration entails recognizing and solidifying one's personal interests, values, goals, commitments, and overall sense of self. As part of identity exploration, adolescents often question assumptions and beliefs that they previously took for granted, including beliefs about substance use. Over the past few decades, US youth have increasingly delayed careers, marriage, and parenthood, and as a result, identity exploration extends beyond adolescence and into young adulthood. These years of prolonged exploration are referred to by some as "emerging adulthood."

Although identity exploration is necessary, normal, and healthy, it may sometimes involve experimentation with substance use. Despite the short-term and long-term health risks of the behavior, substance use (and alcohol use in particular) can serve developmental functions such as making friends, testing boundaries of independence, and exploring one's sense of self. Thus, some youth view substance use as a natural pathway to identity formation.

SPATIAL COGNITION IN ANIMALS

Exploratory behaviors in mammals are reactions to novel settings. This is easily observable in a variety of animals, but most experimental work in psychology, for example, has focused on rodents or primates. Both engage in wayfinding activities and reveal specific patterns of movement-related behaviors. In rodents, exploration usually follows a short freezing phase in which the various senses are used to intake available information and evaluate and look for danger. Exploration

follows, and multiple contacts with objects located in the environment take place via the phenomenon of habituation. This is part of a more general process of knowledge acquisition. In settings previously encountered, reexploration or dishabituation occurs. Thus, novelty in an environment exists normally through reference to stored memories of previously explored or familiar places. The key here is that if novelty is detected and exploration behaviors are triggered, this implies that some representation of the initial situation has been constructed. Such exploratory behavior is assumed by neuropsychologists to be an updating activity of the currently stored cognitive map or spatial representation. When experiencing a new environment, a mismatch between what is stored in the cognitive map or spatial representation and what is observed triggers exploration. In this context, spatial cognitive abilities in animals are often evaluated in a reaction-to-change environment, when repeated exposures to a given spatial configuration are followed by habituation or exploration to fix spatial relationships between environmental objects. If an object is displaced, then the spatial arrangement changes. New exploratory activity provides evidence of a mismatch between the new representation or arrangement and a representation (or cognitive map) of the original situation. Spatial processing and learning in animals are often examined via shortcut and detour tasks (e.g., when a learned path becomes blocked and requires some alternate route to be selected to reach a goal).

Much animal wayfinding activity is said to be governed by the process of path integration. This type of activity has often been observed in the behavior of ants, bees, wasps, or other nesting or home-based organisms. Thus, when foraging behavior occurs and food is found, the organism can return in a direct line or shortcut to the home base. Often called dead reckoning, this action is taken to mean that spatial representations occur across species from insects and other invertebrates to mammals. In insects, the spatial representation may be produced as a retinoptic image (or snapshot) compared to the constructed representations of mammals. Homing has been observed in a wide variety of species, including ants, spiders, dogs, bees, wasps, and humans, suggesting that it may involve a similar algorithm for processing route-based information across these different species.

This appears to be true even when the input data vary among the different tasks. For example, day roving species may use visually detected landmarks to correct minor errors in homing. However, when visual cues are not directly available (e.g., in night active rodents), when deprived of any directional reference, or when animals are prevented from using the sun's magnetic field (as when a reflective surface is interposed), they still perform homing tasks successfully, implying that they assess distance and direction through inertial signals from the vestibular system, somatosensory feedback, and motor signals that specify speed of locomotion and change of direction. Vestibular signals are presumed to play a key role in the estimation of rotations but not translations. For day foraging rodents, it has been suggested that dead reckoning is mainly a backup system that allows an animal to explore novel or unfamiliar parts of an environment when access to familiar landmarks is not available.

CURIOSITY AND EXPLORATION

What makes people curious? Why do individuals explore the unknown? The research in these areas is inconclusive and often contradictory. Are curiosity and exploration motivations or drives? Can curiosity and exploration be operationally defined independent of one another? Motivation is defined as the arousal, direction and persistence of behavior (Franken, 1994); an internal state or condition that activates behavior and gives it direction; desire or want, that energizes and directs goal-

oriented behavior; the influence of needs and desires on the intensity and direction of behavior. Drive is defined as a basic or instinctive need; a vigorous effort toward a goal; to cause and guide the movement.

Curiosity is defined as a need, thirst or desire for knowledge. The concept of curiosity is central to motivation. The term can be used as both a description of a specific behavior as well as a hypothetical construct to explain the same behavior. Berlyne (1960) believes that curiosity is a motivational prerequisite for exploratory behavior. The term curiosity is used both as a description of a specific behavior as well as a hypothetical construct to explain the same behavior. Exploration refers to all activities concerned with gathering information about the environment. This leads to the conflict and question of whether exploratory behavior should be defined in terms of the movements that an animal or human performs while exploring or in terms of the goal or purpose of the behavior observed. A clear distinction between these two may not always be possible.

What exactly are curiosity and exploration? Loewenstein (1994) points out four central issues of curiosity: definition and dimensionally, cause, voluntary exposure to curiosity, and situational determinants. He adds a fifth issue of superficiality and intensity since he states that curiosity can arise, change focus or end abruptly. Loewenstein believes that despite its transience, curiosity can be a powerful motivational force. "Curiosity often produces impulse behavior and attempts at self control" (Loewenstein, 1994). Just look at the stories of Pandora and Eve, in which curiosity causes people to expose themselves knowingly to terrible consequences. Langevin (1971) has conducted research in the area of curiosity and classifies measures of curiosity into two categories. First, curiosity is viewed as a motivational state and measured with behavioral indices. Second, he conceptualizes curiosity as a personality trait that is assessed by personality measures. It has been suggested that curiosity is not a unitary construct. At the conceptual level there are numerous definitions of curiosity which tend to encompass a broad range of characteristics. For Fowler (1965), boredom is one prerequisite or motivation for curiosity (exploration).

Curiosity and exploration are difficult to define independently when looking at them from a psychological perspective, the concepts motivation and drive come into play and become intertwined. The underlying problem in using and defining (scientifically and socially) is the circularity of the terms. Roget's Thesaurus says that the absence of curiosity is boredom, ennui, satiety, take no interest, mind one's own business, uninquisitive.

HISTORICAL OVERVIEW OF CURIOSITY & EXPLORATION

The earliest discussions of curiosity were conducted by philosophers and religious thinkers and centered on the question of curiosity's moral status rather than on its psychological underpinnings. Cicero referred to curiosity as a "passion for learning" and argued that the story of Ulysses and the Sirens was really a parable about curiosity. Several forms of curiosity related behavior such as search behavior, movement toward an unknown object and asking questions are included in the area of motivational psychology, however, curiosity does not fit well into the conceptual framework developed along the traditional pathways of behavioral sciences. Firstly, the conception of an intrinsically motivated behavioral system, which cannot be linked to a reducible driver raises serious questions about motivational psychology since the 1950's. The idea of curiosity was rediscovered when laboratory researchers wondered about the maze activities of the lab rat when none of the drive states such as thirst or hunger were aroused. Secondly, Wohlwill (1981) states that the curiosity phenomena cannot be investigated without reference to the natural environment of an individual. Before 1950 curiosity was seen in the light of its social function, for example: the eagerness or

greed to get to know something new for the sake of newness, and in early psychological literature the term curiosity had a negative connotation. The scientific term "curiosity" is more neutral.

The most basic problem that has occupied curiosity researchers and theorists is the underlying cause of curiosity. Is curiosity a primary or secondary drive? A primary drive is inborn or innate whereas a secondary drive is learned or acquired. The research is inconclusive. If secondary, from what more basic drive or motive does it derive? Older theories oriented toward instinct and drive concepts. The defining feature is that curiosity produces an unpleasant sensation (usually labeled arousal) that is reduced by exploratory behavior.

William James (1890) pointed out two kinds of curiosity. He emphasized the biological function of curiosity as a mechanism of instinct driven behavior that serves in approaching new objects. Approach and exploration are described as being characteristic forms of behavior. The second kind of curiosity pointed out by James is "scientific curiosity" and "metaphysical wonder" with which "the practical instinctive root has probably nothing to do" rather "the philosophical brain responds to an inconsistency or a gap in its knowledge".

In the psychoanalytical literature Freud views curiosity as a derivative of the sex drive. The partial impulse of looking motivates the child's great interest in all things and all events that have to do with sexuality. Whereas the looking impulse and curiosity are primarily sexual in origin, the child's exploratory interest and desire for knowledge can be considered to be a by product of cognitive development. Due to social pressure, sexual exploration is later abandoned. Blarer (1951) states that the inhibition of curiosity may result in different forms of pathological behavior, such as depression, and higher levels of sensation-seeking or thrill seeking behavior. Blarer proposed curiosity to be intrinsic to the individual's perceptions and world experiences and thus Blarer is the basis for the intrinsic motivation viewpoint in curiosity theory.

THEORETICAL CONCEPTIONS OF CURIOSITY & EXPLORATION

The postulation of an independent exploratory drive is based on the observation of the exploratory activities of animals in situations where there were no external stimuli to satisfy homeostatic drives (water or food). Nissen (1930) experimented with rats and defines exploratory behavior in two ways 1. as an inborn exploratory drive 2. that curiosity is a secondary or learned drive acquired through classical conditioning. Originally, Berlyne (1954a, 1960) thought that the aversive and drive-reducing effect of deviations of the arousal potential from the individual's optimum level as the underlying mechanism of curiosity. Since then, Berlyne has come to believe that curiosity is externally stimulated, and that the curiosity drive is aroused by external stimuli specifically stimulus conflict. This encompasses complexity, novelty and surprise. Berlyne believed that in the short term, stimulus change and novelty is accompanied by physiological change. However, over longer periods of time, investigating behaviors are not accompanied by readily identifiable physiological changes. Berlyne also holds that exploratory behavior serves to maintain or attain a medium to optimal activation level for the organism. In all cases where exploration takes place, arousal or desire is reduced.

Fiske and Maddi (1961) hold a medium arousal level model and differentiate between the terms arousal and activation. They define arousal as "diverse manifestations of activation, such as muscle tone, heart rate, and increased sensitivity for stimuli". Their definition of activation is "the state of

a catalytic and energizing mechanism in the central nervous system". McReynolds bases his theories of exploratory behavior on animal experiments. Motivational aspects of exploratory behavior, for example: a living being is active in order to receive new perceptual information from its environment, as well as adaptive aspects, for example: a living being is in a situation of stimuli that it must regulate and adapt to. Fowler's (1965) boredom-based perspective interprets curiosity as a homeostatic drive (internally stimulated) since the curiosity drive seems to be both evoked and satisfied by the same stimuli. He attacked Berlyne by noting the inherent contradiction in the view that the curiosity drive was both evoked and satisfied by the same stimuli. Theorists that believe that curiosity is externally stimulated were "forced to ascribe both drive-eliciting and reinforcing properties to the same stimuli- namely the novel stimuli for which the animal responded" (Fowler, 1965). Fowler observed animals producing the exploration- initiating response before, rather than after, exposure to the stimulus.

Hunt (1963) states that curiosity refers to a "motivation inherent in information processing" this means that curiosity is a mixture of cognition and motivation. The main principle, which is equally as important as the drive reduction hypothesis is the establishment and maintenance of an optimal amount of incongruence. Incongruence determines the strength, direction and affective qualities of behavior.

DRIVE THEORIES

Drive theories differ on whether they view curiosity as a primary or secondary drive. Some research has shown that unsatisfied curiosity tends to intensify over some interval as do other drives such as hunger and thirst. Curiosity has a motivated force that is stimulated internally (boredom) or by external stimuli. However, Hebb (1955) believes that curiosity seeking behavior poses a paradox for drive based accounts of curiosity. "Drive is not simply a state the decrease of which is rewarding. At high levels the reduction of drive is rewarding, but at low levels, an increase may be rewarding" (Hebb, 1955).

What is the role of homeostatic drives to curiosity? Harlow states that exploration is an example of human motivation that is independent from homeostatic drives. Harlow's nonhomeostatic intrinsic drive theory has been attacked by drive and learning theorists. Kreitler and Kreitler (1976) have changed positions from the basic assumption of drive theory to a more cognitive process in the development of exploratory behavior.

CURIOSITY & CULTURE

There is evidence for cross-cultural similarities in exploratory behavior (Dragun, 1981). However, cultures generally vary both in attitudes towards exploration and information seeking as well as in the range of situations allowing the expression of the various manifestations of exploration and curiosity, this is especially true for the sensation-seeking motive. Zuckerman (1994) defines sensation seeking as "the seeking of varied, novel, complex and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experiences." Berlyne also conducted research on cross cultural comparisons in the area of curiosity. His findings conclude that there is a high similarity of demand characteristics of stimuli in two cultures of widely differing historical antecedents and technological development. Also, different cultures from various geographical regions show evidence for cross-cultural similarities in exploratory behavior. More research is needed to study curiosity behavior in its own cultural context to gain a better understanding of the functional relationships between various environmental and

social facilitators and inhibitors of curiosity in a given society.

ZUCKERMAN'S SENSATION SEEKING

Sensation-seeking, defined as the tendency to seek out varied, complex, novel, and intense experiences, has been recognized as a general personality trait in psychological research since the 1960s. In the past decade, cognitive neuroscience has taken aim at the character trait, hoping to shed light on how the brains of thrill seekers might be wired differently than those who are content with more tame pursuits.

Beyond understanding why one person relishes the fright factor while the next studiously avoids it, scientists are asking how sensation-seeking relates to risky behaviors such as fast driving, drug experimentation, and risky sex, as well as psychiatric disorders ranging from substance use disorder to bipolar disorder—areas where the public-health implications are most clear. The hope is that by understanding the neural mechanisms underlying such behaviors, both at the molecular level and at the systems level, it might be possible to develop therapeutic interventions— pharmacological, behavioral, or neurostimulatory—that might prevent the deleterious effects of risk-taking or help people channel their taste for adventure toward safer pursuits.

NOT ALL SENSATION SEEKING IS THE SAME

It's clear from common experience that there is a huge range of sensation-seeking behavior, and that having an affinity for horror flicks or rollercoasters does not inherently make one a drug user or serial cheater. The late psychologist Marvin Zuckerman, Ph.D., who developed the original sensation-seeking scale in 1964 as part of sensory deprivation experiments, outlined four subtypes representing the various ways sensation-seeking is expressed behaviorally:

1. Thrill & Adventure Seeking: the pursuit of physical activities that are exciting, unusual, and potentially dangerous (e.g., sky-diving)
2. Experience Seeking: stimulation through the mind and senses; the pursuit of unfamiliar and complex environmental stimuli, as through travel or meeting new people.
3. Disinhibition: sensation-seeking through engagement with other people; searching for opportunities to lose inhibitions by engaging in variety in sex, alcohol, drugs, etc.
4. Boredom Susceptibility: the tendency to be easily bored by familiar or repetitive situations or people, or by routine work.

BALANCING REWARD AND IMPULSE CONTROL

Brain-imaging studies have offered some intriguing clues as to how the brain of a high-sensation seeker might be different from that of someone who generally avoids risk, but the answers are far from clear. Much of the work has focused on adolescence, a period when risk-taking is often notoriously elevated, as any parent of a teenager can attest. Adolescence is well recognized as a period of rapid brain changes, as neural systems are pruned and shaped in concert with one's environmental influences to lay the groundwork for adulthood. In this context, sensation-seeking can be and often is adaptive—a means by which learning and experience drive brain development.

"It's part of normal healthy development to be curious and seek out new sensations and

experiences,” says Mary Phillips, M.D., a neuropsychiatric researcher at the University of Pittsburgh School of Medicine. “The problem is if it’s sustained into adulthood and it’s not checked, and, secondly, if online regulatory systems don’t kick in like they should. Then the thrill-seeking gets out of hand and that’s when we run into problems with people developing substance use disorders and other problems.”

Among the prevailing models for explaining why adolescents tend to have a higher propensity for risk-taking is that the brain systems for reward, on the one hand, and impulse control, on the other, are developing along different trajectories. Reward systems in subcortical areas tend to develop first, while cognitive-control systems in the prefrontal cortex don’t fully develop until the early 20s.

“If the two systems are in balance, all is fine and eventually the regulatory systems take control. That’s adulthood,” says Phillips. But in psychiatric conditions such as bipolar disorder, which she studies, the thrill-seeking phase can continue unchecked. “In bipolar disorder, this sensation seeking is not only sustained and intense, but it is truly dysregulated, leading to problems with substance abuse as well as other behaviors that can have really bad outcomes,” she says.

In a series of functional brain imaging studies, Phillips’ research team has zeroed in on two brain regions of interest to reward processing: the ventral striatum, deep in the brain, and the ventrolateral prefrontal cortex (PFC), on the left side of the front brain. The ventral striatum, which includes the nucleus accumbens, is well recognized for its central role in reward learning—but it doesn’t appear to discern the relative value of reward, and requires other regulatory regions of the brain to rein it in, including the ventrolateral PFC.

The team’s 2017 paper reported an indirect pathway linking activity in specific reward-related brain structures to risky behavior in young adults who scored high on a scale of impulsive sensation-seeking. The work—the first to make this tripartite connection among brain system, risky behavior, and sensation-seeking as a trait—opens the door for targeted therapeutic interventions that might prevent or ameliorate deleterious risk taking, including neurostimulation protocols that could tamp down or ramp up brain activity that is too high or too low. The researchers have been testing a therapy using transcranial direct current stimulation, a noninvasive brain stimulation modality, to do just that in a group of young adults at high risk for psychopathology (paper in review). Dozens of other research groups are also investigating neural pathways underlying sensation-seeking and risk-taking in an attempt to localize the brain regions underlying this ubiquitous personality trait. Lauren Sherman, Ph.D., and colleagues at Temple University reviewed 23 brain imaging studies investigating individual differences in brain responses to risky decision making in adolescents from childhood to young adulthood. Somewhat surprisingly, their exhaustive review of the literature found no common neural locus and concluded that “neural factors differentiating riskier teens are not localized to a single region.”

The brain regions identified in the studies, which spanned ten years of cognitive neuroscience, included 25 cortical and subcortical areas. The authors urged researchers to “think outside the brain” in developing more complex models that account for brain as well as environmental factors that interact to make individuals more or less susceptible to risky business.

THE DOPAMINE CONNECTION

Studies of identical twins suggest that heritability accounts for about 60 percent of individual variance in sensation-seeking behavior, and scientists have identified genetic variations that may explain some of these differences. For example, some subtypes of brain receptors for dopamine, the primary neurotransmitter involved in reward processing, are associated with greater sensation-seeking tendencies, while other types appear to have an opposite effect: the fewer there are, the greater the novelty-seeking behavior. The latter may act as brakes on dopamine release, so having fewer of them means that more dopamine is released in response to novelty. This may in turn drive reward-seeking behavior.

The involvement of dopamine in novelty-seeking behavior may also explain the well-established relationship between high sensation-seeking and drug use. High-sensation seekers are more likely than lows to try drugs earlier, to become addicted, and to experiment with multiple drugs. Like drugs of abuse, exposure to novel stimuli releases a rush of dopamine in reward areas of the brain. And, high-sensation seekers often develop a sort of tolerance to high-risk activities—boredom sets in, and they are compelled to add new twists that re-create the initial charge.

EFFECTS OF ACHIEVEMENT MOTIVATION

Motivation is the basic drive for all of our actions. Motivation refers to the dynamics of our behavior, which involves our needs, desires, and ambitions in life. Achievement motivation is based on reaching success and achieving all of our aspirations in life. Achievement goals can affect the way a person performs a task and represent a desire to show competence (Harackiewicz, Barron, Carter, Lehto, & Elliot, 1997). These basic physiological motivational drives affect our natural behavior in different environments. Most of our goals are incentive-based and can vary from basic hunger to the need for love and the establishment of mature sexual relationships. Our motives for achievement can range from biological needs to satisfying creative desires or realizing success in competitive ventures. Motivation is important because it affects our lives everyday. All of our behaviors, actions, thoughts, and beliefs are influenced by our inner drive to succeed.

THE HIERARCHAL MODEL OF ACHIEVEMENT MOTIVATION

Achievement motivation has been conceptualized in many different ways. Our understanding of achievement-relevant effects, cognition, and behavior has improved. Despite being similar in nature, many achievement motivation approaches have been developed separately, suggesting that most achievement motivation theories are in concordance with one another instead of competing. Motivational researchers have sought to promote a hierarchal model of approach and avoidance achievement motivation by incorporating the two prominent theories: the achievement motive approach and the achievement goal approach. Achievement motives include the need for achievement and the fear of failure. These are the more predominant motives that direct our behavior toward positive and negative outcomes. Achievement goals are viewed as more solid cognitive representations pointing individuals toward a specific end. There are three types of these achievement goals: a performance-approach goal, a performance-avoidance goal, and a mastery goal. A performance-approach goal is focused on attaining competence relative to others, a performance-avoidance goal is focused on avoiding incompetence relative to others, and a mastery goal is focused on the development of competence itself and of task mastery. Achievement motives can be seen as direct predictors of achievement-relevant circumstances. Thus, achievement motives are said to have an indirect or distal influence, and achievement goals are said to have a direct or proximal

influence on achievement-relevant outcomes (Elliot & McGregor, 1999).

These motives and goals are viewed as working together to regulate achievement behavior. The hierarchical model presents achievement goals as predictors for performance outcomes. The model is being further conceptualized to include more approaches to achievement motivation. One weakness of the model is that it does not provide an account of the processes responsible for the link between achievement goals and performance. As this model is enhanced, it becomes more useful in predicting the outcomes of achievement-based behaviors (Elliot & McGregor, 1999).

ACHIEVEMENT GOALS AND INFORMATION SEEKING

Theorists have proposed that people's achievement goals affect their achievement-related attitudes and behaviors. Two different types of achievement-related attitudes include task-involvement and ego-involvement. Task-involvement is a motivational state in which a person's main goal is to acquire skills and understanding whereas the main goal in ego-involvement is to demonstrate superior abilities (Butler, 1999). One example of an activity where someone strives to attain mastery and demonstrate superior ability is schoolwork. However situational cues, such as the person's environment or surroundings, can affect the success of achieving a goal at any time.

Studies confirm that a task-involvement activity more often results in challenging attributions and increasing effort (typically in activities providing an opportunity to learn and develop competence) than in an ego-involvement activity. Intrinsic motivation, which is defined as striving to engage in activity because of self-satisfaction, is more prevalent when a person is engaged in task-involved activities. When people are more ego-involved, they tend to take on a different conception of their ability, where differences in ability limit the effectiveness of effort. Ego-involved individuals are driven to succeed by outperforming others, and their feelings of success depend on maintaining self-worth and avoiding failure. On the other hand, task-involved individuals tend to adopt their conception of ability as learning through applied effort (Butler, 1999). Therefore less able individuals will feel more successful as long as they can satisfy an effort to learn and improve. Ego-invoking conditions tend to produce less favorable responses to failure and difficulty.

Competence moderated attitudes and behaviors are more prevalent in ego-involved activities than task-involved. Achievement does not moderate intrinsic motivation in task-involving conditions, in which people of all levels of ability could learn to improve. In ego-involving conditions, intrinsic motivation was higher among higher achievers who demonstrated superior ability than in low achievers who could not demonstrate such ability (Butler, 1999). These different attitudes toward achievement can also be compared in information seeking.

Task- and ego-involving settings bring about different goals, conceptions of ability, and responses to difficulty. They also promote different patterns of information seeking. People of all levels of ability will seek information relevant to attaining their goal of improving mastery in task-involving conditions. However they need to seek information regarding self-appraisal to gain a better understanding of their self-capacity (Butler, 1999). On the other hand people in ego-involving settings are more interested in information about social comparisons, assessing their ability relative to others.

SELF-WORTH THEORY IN ACHIEVEMENT MOTIVATION

Self-worth theory states that in certain situations students stand to gain by not trying and

deliberately withholding effort. If poor performance is a threat to a person's sense of self-esteem, this lack of effort is likely to occur. This most often occurs after an experience of failure. Failure threatens self-estimates of ability and creates uncertainty about an individual's capability to perform well on a subsequent basis. If the following performance turns out to be poor, then doubts concerning ability are confirmed.

Self-worth theory states that one way to avoid threat to self-esteem is by withdrawing effort. Withdrawing effort allows failure to be attributed to lack of effort rather than low ability which reduces overall risk to the value of one's self-esteem. When poor performance is likely to reflect poor ability, a situation of high threat is created to the individual's intellect. On the other hand, if an excuse allows poor performance to be attributed to a factor unrelated to ability, the threat to self-esteem and one's intellect is much lower (Thompson, Davidson, & Barber, 1995).

A study was conducted on students involving unsolvable problems to test some assumptions of the self-worth theory regarding motivation and effort. The results showed that there was no evidence of reported reduction of effort despite poorer performance when the tasks were described as moderately difficult as compared with tasks much higher in difficulty.

The possibility was raised that low effort may not be responsible for the poor performance of students in situations which create threats to self-esteem. Two suggestions were made, one being that students might unconsciously withdraw effort, and the other stating that students may reduce effort as a result of withdrawing commitment from the problem. Regardless of which suggestion is true, self-worth theory assumes that individuals have a reduced tendency to take personal responsibility for failure (Thompson, Davidson, & Barber, 1995).

AVOIDANCE ACHIEVEMENT MOTIVATION

In everyday life, individuals strive to be competent in their activities. In the past decade, many theorists have utilized a social-cognitive achievement goal approach in accounting for individuals striving for competence. An achievement goal is commonly defined as the purpose for engaging in a task, and the specific type of goal taken on creates a framework for how individuals experience their achievement pursuits. Achievement goal theorists commonly identify two distinct ideas toward competence: a performance goal focused on demonstrating ability when compared to others, and a mastery goal focused on the development of competence and task mastery. Performance goals are hypothesized to produce vulnerability to certain response patterns in achievement settings such as preferences for easy tasks, withdrawal of effort in the face of failure, and decreased task enjoyment. Mastery goals can lead to a motivational pattern that creates a preference for moderately challenging tasks, persistence in the face of failure, and increased enjoyment of tasks (Elliot & Church, 1997).

Most achievement goal theorists conceptualize both performance and mastery goals as the "approach" forms of motivation. Existing classical achievement motivation theorists claimed that activities are emphasized and oriented toward attaining success or avoiding failure, while the achievement goal theorists focused on their approach aspect. More recently, an integrated achievement goal conceptualization was proposed that includes both modern performance and mastery theories with the standard approach and avoidance features. In this basis for motivation, the performance goal is separated into an independent approach component and avoidance component, and three achievement orientations are conceived: a mastery goal focused on the development of

competence and task mastery, a performance- approach goal directed toward the attainment of favorable judgments of competence, and a performance-avoidance goal centered on avoiding unfavorable judgments of competence.

The mastery and performance-approach goals are characterized as self-regulating to promote potential positive outcomes and processes to absorb an individual in their task or to create excitement leading to a mastery pattern of achievement results. Performance-avoidance goals, however, are characterized as promoting negative circumstances.

INTRINSIC MOTIVATION AND ACHIEVEMENT GOALS

Intrinsic motivation is defined as the enjoyment of and interest in an activity for its own sake. Fundamentally viewed as an approach form of motivation, intrinsic motivation is identified as an important component of achievement goal theory. Most achievement goal and intrinsic motivational theorists argue that mastery goals are facilitative of intrinsic motivation and related mental processes and performance goals create negative effects. Mastery goals are said to promote intrinsic motivation by fostering perceptions of challenge, encouraging task involvement, generating excitement, and supporting self-determination while performance goals are the opposite. Performance goals are portrayed as undermining intrinsic motivation by instilling perceptions of threat, disrupting task involvement, and creating anxiety and pressure (Elliot & Harackiewicz, 1996).

An alternative set of predictions may be derived from the approach- avoidance framework. Both performance-approach and mastery goals are focused on attaining competence and foster intrinsic motivation. More specifically, in performance-approach or mastery orientations, individuals perceive the achievement setting as a challenge, and this likely will create excitement, encourage cognitive functioning, increase concentration and task absorption, and direct the person toward success and mastery of information which facilitates intrinsic motivation. The performance-avoidance goal is focused on avoiding incompetence, where individuals see the achievement setting as a threat and seek to escape it (Elliot & Harackiewicz, 1996). This orientation is likely to elicit anxiety and withdrawal of effort and cognitive resources while disrupting concentration and motivation.

PERSONAL GOALS ANALYSIS

In recent years, theorists have increasingly relied on various goal constructs to account for action in achievement settings. Four levels of goal representation have been introduced: task-specific guidelines for performance, such as performing a certain action, situation-specific orientations that represent the purpose of achievement activity, such as demonstrating competence relative to others in a situation, personal goals that symbolize achievement pursuits, such as getting good grades, and self-standards and future self-images, including planning for future goals and successes. These goal-based achievement motivation theories have focused almost exclusively on approach forms behavior but in recent years have shifted more toward avoidance (Elliot & Sheldon, 1997).

Motivation is an important factor in everyday life. Our basic behaviors and feelings are affected by our inner drive to succeed over life's challenges while we set goals for ourselves. Our motivation also promotes our feelings of competence and self-worth as we achieve our goals. It provides us with means to compete with others in order to better ourselves and to seek out new information to learn and absorb. Individuals experience motivation in different ways, whether it is task- or ego-based in nature. Some people strive to achieve their goals for personal satisfaction and self-

improvement while others compete with their surroundings in achievement settings to simply be classified as the best. Motivation and the resulting behavior are both affected by the many different models of achievement motivation. These models, although separate, are very similar in nature and theory. The mastery and performance achievement settings each have a considerable effect on how an individual is motivated. Each theorist has made a contribution to the existing theories in today's achievement studies. More often than not, theorists build off of each other's work to expand old ideas and create new ones. Achievement motivation is an intriguing field, and I find myself more interested after reviewing similar theories from different perspectives.

MOTIVATIONAL COMPETENCE

Learning competence motivation theory can help you motivate your team to apply greater effort, be more persistent and take on more challenging tasks. By understanding this learning motivation theory, team leaders or managers can use appropriate praise and feedback to help employees become more motivated in learning new skills. Understanding the nuances of competence motivation and how you can apply it in the workplace can take time and practice. In this article, we explain how competence motivation impacts an employee's performance and share tips for helping employees build high perceptions of competence in the workplace.

COMPETENCE MOTIVATION THEORY

Competence motivation is a theory that centers on the idea that people are driven to engage in activities to develop or demonstrate their skills. If someone successfully performs a challenging task and receives praise from family or peers for it, then they will experience a belief in their competence in that achievement domain—physical, cognitive or social. Success in that domain will help them recognize that they can control their performance. High perceptions of competence and control create feelings of pleasure that maintain or lead to an increase in competence motivation.

BENEFITS OF COMPETENCE MOTIVATION THEORY IN THE WORKPLACE

Employees who are successful when attempting new skills or tasks and receive positive reinforcement will internalize a self-reward system as well as a set of mastery goals. This can have a positive and long-term effect on their confidence. Because they are internalizing their own set of standards, employees will no longer be dependent on others to evaluate their performances or motivate them to continue. Instead, they will be motivated to continue on their own because they recognize they are competent in that area.

People who perceive themselves as highly competent in one area will also demonstrate higher levels of effort and persistence as well as have a preference for more challenging tasks. People who have high levels of competence are also likely to have high levels of self-worth and self-esteem, which can impact every area of their lives, from relationships to employment. By using the right kind of praise and positive reinforcement, you can motivate an employee to want to perform in a way that will bring more praise. The sense of accomplishment the person experiences will provide an additional reward. The employee may also come to define their own mastery goals. Positive reinforcement results in the general sense that you can impact your own circumstances.

HOW TO USE COMPETENCE MOTIVATION IN THE WORKPLACE

Research suggests that when teachers emphasize meaning and individual development in the classroom, children's competence motivation is increased. The same applies to employees in the

workplace. Here are a few ways you can use competence motivation in the workplace right away:

1. Assign tasks that are personally interesting to employees
2. Provide the right kind of feedback
3. Assign tasks that are moderately and appropriately challenging
4. Encourage mastery, skill development and the learning process
5. Encourage challenging but achievable goals
6. Give praise when earned

1. ASSIGN TASKS THAT ARE PERSONALLY INTERESTING TO EMPLOYEES

Employees will be more interested in pursuing mastery of an area if they are personally interested in the topic or task. This will create a kind of peak involvement, where the employee isn't thinking about objectives, rewards or anything else extrinsic. And by being wholly involved in learning, the employee should be more likely to achieve competency in the subject.

2. PROVIDE THE RIGHT KIND OF FEEDBACK

Managers or team leaders can help employees feel in control of their learning and achievements by providing feedback that encourages them to recognize the power they have over what and how they learn. When giving feedback, talk about how far the employee has come since first trying the task. Focus on the process they are using to learn.

3. ASSIGN TASKS THAT ARE MODERATELY AND APPROPRIATELY CHALLENGING

Encourage employees to try tasks that are appropriately challenging for their skill levels. To do this successfully, encourage them to focus on mastery goals, which by nature are always just out of reach. Also, focus on the constructive value of failure and mistakes. This will help you achieve a healthy balance, providing both mental challenges as well as comfort in knowing that occasional errors are okay.

4. ENCOURAGE MASTERY, SKILL DEVELOPMENT AND THE LEARNING PROCESS

Unlike performance goals, which focus on a specific outcome, mastery goals are about mastering a task and being better each day than you were the day before. You never quite reach them because there is always room for improvement. By focusing on mastery, skill development and the learning process, employees in your workplace will be less likely to give up in difficult circumstances and more likely to persevere when experiencing setbacks.

5. ENCOURAGE CHALLENGING BUT ACHIEVABLE GOALS

According to the competence motivation theory, success or mastery of a task can lead to an overall increase in the perception of one's own competence. However, if the person is continually failing at a task or does not receive peer support, it can have the opposite effect. That is why it is essential to encourage challenging but achievable goals. If the goals are too easily achieved, the employee can become bored or even embarrassed by the simplicity of the tasks they are given. Challenging goals are important in a public setting like a workplace.

6. GIVE PRAISE WHEN EARNED

Giving employees praise for growth or increased mastery of a task or skill can help to create a high perception of competence. Praise employees for their hard work, rewarding success

publicly and praising exemplary work throughout your department or organization.

SELF-REGULATION

Self-regulation is the ability to monitor and manage your energy states, emotions, thoughts, and behaviors in ways that are acceptable and produce positive results such as well-being, loving relationships, and learning. It is how we deal with stressors and as such, lays the foundation for all other activity. Developing this ability requires self-awareness, emotional intelligence, efficient filtering of sensory stimulation, coping effectively with stress, relating well to others, and sustaining focus.

SELF-REGULATION AND CHILDHOOD DEVELOPMENT

It is one of the big developmental tasks of childhood. Sometimes, kids develop it naturally from being around self-regulating adults, from playing and exercising, from being in nature, eating healthy foods, and getting plenty of sleep. Other times, however, kids are over-stimulated, around adults who are stressed and/or dys-regulated, and are not getting enough exercise, time outside in nature, sleep, hydration, and healthy food. These kids struggle with attention, learning, impulse control and relationships.

SELF-REGULATION INVOLVES THE WHOLE PERSON/CHILD

What is self-regulation in terms of the whole person or child? This skill involves much more than simply self control. It involves the whole person including these 4 aspects: **Physical**: biology, temperament **Emotional**: personality, exposure to trauma, ability to inhibit impulses, **Mental**: focus, shift of focus, control, management of distractions & frustration **Social**: interpersonal interactions, empathy, values

SELF-REGULATION TAKES ENERGY.

When a child acts out or melts down, it is because s/he has no more fuel for managing stressors. That's why it's important to notice what stresses your children and what soothes them; to teach them mindfulness skills; to play with them; to make sure they get exercise and plenty of sleep. Dr. Stewart Shanker uses a car analogy to explain self-regulation, which is paraphrased below: Self-regulation is like maintaining a consistent rate of acceleration. If we want to go 25 mph, then we will need to adjust the pressure to the accelerator to allow for changes to the road, incline and wind. Driving requires constant changes depending on traffic conditions and speed zones, etc. Learning to accelerate, brake, and change gears smoothly takes time and practice. This is quite similar to children learning to self-regulate. Some children are always pushing too hard on the accelerator, while others jump between gears quickly, and some are slow to accelerate. Children need time and support to master the ability to find and sustain their optimum speed and level of arousal while dealing with a range of stimuli and stressors.

As children develop motor skills and process sensory information they start to understand how their body can move slow, fast and all the speeds in between. Over time, children begin to learn to self-regulate and determine their "just right" body state that is ready to learn. **Too Slow, Just Right or Too Fast – Visual Supports for Self-Regulation** digital document includes 11 visual supports to help children practice self-regulation skills. Use the visual supports to have children practice moving at different speeds to determine their "just right" state. If children have trouble processing sensory information, you can use the visual supports for them to respond and reflect on their current level of arousal.

FLOW THEORY IN PSYCHOLOGY

We all want to experience it. It's intense, exhilarating, and satisfying. When we're in the zone, or what researchers call 'flow,' we feel invisible. The theory behind flow is as popular as ever with researchers investigating its effects in several areas of our lives. They're looking at how flow affects us in sports, art, gaming, learning, and everyday athletics.

Mihaly Csikszentmihalyi (Me-high Cheek-sent-me-high), the researcher who coined the term 'flow' discovered that people who experience flow tend to describe it similarly. There's a feeling of timelessness. The task seems easy and things just "come together." He and his fellow researchers asked participants in their study to use pagers to communicate their thoughts and feelings at various times throughout their day. The initial study involved teenagers and while many reported unhappiness, Csikszentmihalyi noticed that when the teens were engaged in a challenging activity, their answers were more positive. \ This type of tracking is called the Experience Sampling Method in which participants answer a series of questions about their experience at the moment the pager beeps.

Here's how he explains flow and his research. To better understand Flow Theory, we need to know Csikszentmihalyi's perspective regarding consciousness. He believes that we need to control our consciousness which in psychology is defined as: "...the subjective experience of oneself and one's environment. This experience includes the awareness of one's feelings and emotions and the awareness of, and perceived control over, one's thoughts and behaviors." For those familiar with Daniel Kahneman's book, *Thinking Fast and Slow*, we can call this System 2 processing. As this happens, we formulate emotions and thoughts that eventually lead to action or inaction by our bodies. Without System 2, as Csikszentmihalyi (1990) points out, our instincts and reflexes (System 1) would take over.

Another way to look at this is, we need to control how we interpret the events that become a part of our conscious experience. If we do this successfully, then we are more likely to experience greater happiness, and therefore more flow. Researchers at Harvard (2016) believe they've located where consciousness is in our brains. While studying coma patients they discovered a connection between a small part of our brainstem and two cortical regions. When that portion of the brainstem is damaged, a disconnection occurs between the cortical regions. This is important because we need both arousal and awareness in order to experience consciousness. System 1 represents arousal and System 2 is awareness. Think of this as our internal "checks and balances" as we navigate our environment. Flow is the complete immersion in an activity that you deem enjoyable in some way. This doesn't mean that it's not challenging. In fact, the activity must challenge you just enough to push you. Your skills must be tested. Flow activities excite us, provide intrinsic rewards, and help us develop our skills. Flow is a feeling of exhilaration and bliss.

A key component of getting into flow is that we've voluntarily accepted the challenge we're attempting to solve. That's part of what makes it deeply enjoyable. In Csikszentmihalyi's (1990) first edition of **Flow: The psychology of optimal experience**, he identified 9 ways through which we can achieve flow.

- Our bodies: Sex, dancing, and singing are a few examples. Later, Csikszentmihalyi (2008) classifies these as pleasurable, but not necessarily leading to flow.
- Our minds: Pushing ourselves to accomplish a difficult task like solving a math problem leads to

satisfaction and enjoyment.

- Memories: Recalling enjoyable events allows us to relive our experience.
- Contemplating philosophical questions
- Communication: Conveying our thoughts to others and being understood can create a sense of profound enjoyment.
- Writing: This activity brings organization to our thoughts and is therefore enjoyable.
- Lifelong learning keeps us engaged in the activities we enjoy.
- A job: This works especially well if one is able to gamify one's job.
- Solitude: Being comfortable alone with our thoughts can lead to exciting discoveries about the topics we find most enjoyable.

We can experience flow throughout our day, or sadly not at all. It's a choice. That's the beauty of finding flow.

Czikszentmihalyi (2008) also describes the theory as involving nine major components. To experience flow is to experience a sense of euphoria.

THEY ARE:

- The task is just outside our grasp, but we believe we can reach it.
- We're able to focus all of our effort and attention on the task.
- Our goals are clearly defined.
- We receive immediate feedback (which includes course corrections.)
- Our time spent on the task seems effortless to us.
- We feel a sense of autonomy over our actions.
- Our focus isn't on ourselves.
- The experience is timeless.
- The experience is autotelic.

DIFFICULTY ACHIEVING FLOW

- People who have psychiatric disorders like schizophrenia have difficulty because they can't ignore distractions from external stimuli. They're unable to distinguish between relevant and irrelevant information.
- Self-conscious people may lack the confidence necessary to pursue a challenging task.
- Self-centered people may lack the intrinsic motivation needed to doggedly pursue a challenge to completion.
- People who behave in ways that go against their goals (known as alienation) may not establish clearly defined objectives for their tasks.
- People who experience an environment in which the norms aren't clearly defined may become confused.

WHO CAN ACHIEVE FLOW?

The short answer is almost everyone. Even many of the people mentioned above can learn to achieve flow. Czikszentmihalyi (1990) asserts that no one is permanently disadvantaged by their genetics. Young and old can achieve flow. Have you ever watched a child playing a new sport, bumbling about, but then she gets control of the ball and scores? Think of a time when you were focused on an activity you liked. It probably took 15–20 minutes for you to get into "your zone," but once you did, what happened? Maybe you were writing a short story or immersed in your favorite video game. Did you lose track of time? Did your writing come more easily to you? Were you able to

reach higher and higher levels more rapidly?

People who experience flow regularly tend to be able to ignore irrelevant stimuli in their environments and enjoy themselves in a variety of situations because of their ability to filter. They also have more control over their thoughts. These individuals pay close attention to details which often helps them identify opportunities to act, set goals, gain feedback, and go after bigger challenges

FLOW AND HAPPINESS

The connection of flow to happiness is an important one. In his book, Csikszentmihalyi sums it up this way: "One of the most frequently mentioned dimensions of the flow experience is that, while it lasts, one is able to forget all the unpleasant aspects of life." Mihaly Csikszentmihalyi, *Flow: The Psychology of Happiness* Rogatko (2009) studied positive affect (PA) in a group of undergraduate college students in Japan. The objective was to determine if a causal relationship existed between PA and flow. Students were assigned to either a low or high flow activity. The results support the theory that flow leads to PA. The pursuit of flow experiences is the pursuit of happiness, but this happiness is eudemonic in nature, not hedonic.

It's important to note that a single flow experience doesn't automatically lead to other flow experiences, but for someone who has a clearly defined goal it can. If the goal is challenging enough and other goals flow from it, then it's more likely that the person will have more flow experiences in various areas of her life. Csikszentmihalyi (1990) calls this a "unified flow experience." This means that the person is devoting all of her energy to acquiring the skills necessary to achieve the larger goal. This puts her thoughts, feelings, and actions into harmony. Everything she does fits into her larger goal whether it's in the present moment or upon review of past events, actions, and experiences.

FLOW AND POSITIVE PSYCHOLOGY

The study of flow falls within the area of happiness in Positive Psychology research. There are numerous topics covered in positive psychology including resilience, creativity, positive emotions, strengths, and mindfulness. The researcher's focus is driven by and concerned with how human beings thrive. Positive psychology researchers study how people lead meaningful and fulfilling lives.

Steven Kotler and Jamie Wheal are two men on a mission to explore the boundaries if there are any, of flow. They're immersing themselves in the subject and working with several organizations and businesses to study ultimate human performance.

10 EXAMPLES OF FLOW IN PSYCHOLOGY

The number of examples one could list is very long. Here are several to spark your thinking.

- A graphic artist creating a website illustration or logo
- A writer completing a 2000-word scene in an hour
- A musician composing a song while commuting to work on a subway
- A skier navigating a challenging downhill course seemingly effortlessly
- The creation of a soufflé by a chef
- Solving a Rubik's Cube
- A pool player performing trick shots
- A pool player sinking all of their balls before their opponent steps up to shoot
- An hapkidoist executing expert joint locks

- A student studying for finals wearing noise-canceling headphones

FLOW STATE IN SPORTS PSYCHOLOGY

This is perhaps one of the most widely studied areas in positive psychology. How and when do athletes get “in the zone?” Most research is conducted using self-report surveys and the Experience Sampling Method (ESM) mentioned earlier and originally developed by Csikszentmihalyi. Researchers have found a significant, positive relationship between intrinsic motivation and flow state among athletes. They’ve also learned that extrinsic motivation doesn’t significantly predict flow state (Kauffman, Soulliard, Perry, Montgomery, Hansen, Merz, & Ross, 2017).

Athletes and coaches want to find ways to get into flow faster and sustain the experience longer. This video provides useful information about flow, athletic performance, and a tool that could be used. (This isn’t an endorsement for their product. It’s simply an example of what could happen in the near future for athletes.)

MOTIVATION AND FLOW THEORY

Extrinsic motivation can be thought of as the “carrot and stick” approach to engagement in a task. Its effects are fleeting. As long as the person receives a reward and avoids a negative outcome, it works, but it does little to develop intrinsic motivation. A prerequisite of attaining flow is voluntary engagement in a task that the person finds enjoyable. For tasks that are neither completely voluntary or enjoyable, the person may only work for satisfaction derived from external rewards. When we’re in flow, we experience intrinsic motivation. We do whatever the task involves simply because it interests us, is enjoyable, provides a level of challenge that nearly matches our current skills, and for which we’re receiving immediate feedback.

Have you ever done a job and thought, “I’d do this even if they didn’t pay me?” You might be experiencing consistent and constant flow in that job. The satisfaction from doing the work motivates you to continue. You don’t need or care about recognition. It’s all about the work.

A LOOK AT FLOW THEORY IN EDUCATION

A survey conducted by **Youth Truth** between 2012-2017 that included 230,000 students in grades three through twelve, indicated that the majority of students feel engaged at school. Sixty-eight percent of students in small schools (200 middle school – 300 high school students) reported being engaged compared to fifty-seven percent in large schools (800 middle school – 1200+ high school). Smaller school size is associated with lower dropout rates, higher GPAs, better attendance, and higher graduation rates. While numbers varied depending on level (elementary students were most engaged and high school students least) this is great news for flow researchers. An engaged student population is likely to experience more moments of flow.

THE EFFECT OF FLOW ON LEARNING

The idea of overlearning a task relates to flow. If you recall from the video above, our brains love repetition. That’s essentially what overlearning a task is, and when we do a thing repeatedly for a period of time, we’re more likely to experience flow. Let’s return to those gaming researchers – rather than use the usual questionnaires and scales, some researchers are beginning to use EEG machines to objectively study what’s happening in the student’s brain while engaged in an educational gaming activity. This is because self-reports are subjective. One of the objectives of researchers in this field is to create a flow environment. They want to know if a student can be guided into a

flow experience. It's not simply to determine if students experience flow while playing the game. When we're in flow, our learning speeds up.

TAKE THIS EXAMPLE:

Researchers wanted to know the effect of flow on EFL learners' vocabulary acquisition. They used the "Flow Perceptions Questionnaire," to assess if a relationship existed. Their results indicated that flow existed in the classroom and that there was a significant relationship between the level of flow, and vocabulary retention in immediate and delayed measurements (Amini, Ayari, & Amini, 2016).

ARE OPEN-PLAN SCHOOLS HURTING STUDENTS' ABILITY TO ACHIEVE FLOW?

Given what research tells us about the negative effects of open-office designs, how does this affect students in a similar environment? Does flow become disrupted in open classroom designs, or does it encourage flow for students and teachers? There's been a resurgence of open-plan school designs in the past few years in the US and elsewhere. Proponents believe the closed classroom concept is archaic and that children need to be able to explore and learn at their own pace. Opponents point to research like what's been mentioned in this article that shows the detrimental effects of open floor plans. The most commonly studied issue is noise. Shield, Greenland, and Dockrell (2010) reviewed research spanning a 40-year period specifically related to this concern. The primary issue is noise coming from adjacent classes. They cite the need to install proper acoustic materials, the use of partitions, and coordinating with other teachers to minimize distraction.

WHAT IS EMOTIONS: PHYSIOLOGICAL CORRELATES THEORIES OF EMOTIONS: JAMES-LANGE, CANON-BARD, SCHACHTER AND SINGER, LAZARUS, LINDSLEY. EMOTION REGULATION?

EMOTIONS: PHYSIOLOGICAL CORRELATES THEORIES OF EMOTIONS: JAMES-LANGE, CANON-BARD, SCHACHTER AND SINGER, LAZARUS, LINDSLEY. EMOTION REGULATION

Emotions: Physiological correlates

According to most recent theories, human emotion is intrinsically tied to the concomitant activity of the autonomic nervous system. Empirical research has put forth an increasing number of indicators of physiological activity which are considered to be relevant for discriminating between specific subtypes of emotions (for a review, see Kreibig, 2010). One physiological indicator related to strong emotional experience is piloerection. In Charles Darwin's seminal work on "The Expression of the Emotions in Man and Animals" (1872), he already acknowledged that "hardly any expressive movement is so general as the involuntary erection of the hairs, feathers and other dermal appendages" (p. 95).

Piloerection, on the one hand, is known as a response to cold as a primary physical elicitor. In animals, the erection of coat hair or feathers serves to increase the isolation layer of air around the body. In humans, piloerection in response to cold is considered as a relic of the thermoregulatory response of our furred ancestors in evolution (Campbell, 1996). On the other hand, piloerection is also known as a response to strong psychological elicitors. In animals, it can be observed in states of anger or anxiety (Darwin, 1872), but it was also observed in the course of courtship of male chimpanzees (Nishida, 1997). In humans, the study of emotional piloerection (i.e., goose bumps) is tightly linked to the study of chills or thrills. While piloerection actually denotes the visible erection of body hair, the phenomenon of chills or thrills usually relates to a subjective experience.

This subjective experience is sometimes described by the sensation of 'shivers down the spine' and it was found to be a necessary but not sufficient concomitant of visible piloerection (Craig, 2005). However, it should be noted that piloerection and chills are sometimes also found to be used interchangeably in the scientific literature. Psychophysiological correlates of subjectively reported piloerection Music is also the most common stimulus in the study of psychophysiological correlates of piloerection-evoking experiences. Rickard (2004) compared emotionally powerful music (i.e., individually selected moving and personally meaningful music) to arousing music (i.e., music pre-selected to elicit high subjective and physiological arousal).

He showed that emotionally powerful music elicited more subjective responses of chills and higher skin conductance level (SCL), whereas the conditions did not differ significantly with respect to heart rate (HR) or skin temperature (ST). Craig (2005) found that music sections containing reports of chills were associated with higher skin conductance response (SCR) amplitudes than sections preceding or following chills, but not with changes in ST. Guhn et al. (2007) identified music passages apt to elicit chill responses and found that participants who actually reported experiencing chills showed higher SCR amplitudes than those who did not; the groups did however not differ with respect to HR. Grewe et al. (2009) found that music episodes which elicited subjective reports of chills were associated with increases in SCR amplitude, SCL, and HR but with no difference in respiratory rate (RR). In a similar study, Salimpoor et al. (2009) showed that music episodes which elicited subjective reports of chills resulted in higher SCL, HR, RR, and lower blood volume pulse amplitude and ST as compared to matched neutral episodes. In a positron emission tomography (PET) study, Subject-Selected music, which reliably elicited subjective reports of chills, was compared to music that elicited chills in others (Blood and Zatorre, 2001). Chill music was associated with higher HR and RR but with no significant difference in electrodermal measures or ST. Moreover, cerebral blood flow related to chill intensity showed a pattern typical for processes involved in reward, euphoria and arousal, including ventral striatum, midbrain, amygdala, orbitofrontal cortex, and ventral medial prefrontal cortex.

COGNITIVE THEORIES OF EMOTIONS:

Two-Factor Theory The two-factor theory of emotion states that emotions are interactions of

- (1) physiological arousal and
- (2) the cognitive label that we apply to explain the arousal.

To demonstrate the two-factor theory, Schachter and Singer gave participants an injection of epinephrine that increases blood pressure, heart rate, blood flow to the brain, blood sugar levels and respirations. This was an artificial physiological arousal. Participants were given one of three explanations about the injection.

- correctly informed of the effects, or
- some were misinformed of the effects, or
- some were not informed at all.

All participants had a change in physiological arousal. What label do people ascribe to this arousal?

- Those who were informed about the injection would understand their physiological changes and need not explain this arousal with an emotional response.
- Those who had no explanation (the misinformed and uninformed group) for their physiological changes would use environmental cues to understand their arousal and explain it with an emotional response (e.g. happiness)

Misattribution of Emotional States According to the two-factor theory, when we are physiologically aroused, we try to understand the arousal and attribute it to emotions. In some instances, we misidentify the source and cause of our emotions. This process is unconscious and automatic. When people are physiologically aroused while riding an exercise bike, or

- o They find attractive people more attractive
- o Annoying people more annoying
- o Funny cartoons funnier

When people were physiologically aroused by walking over a bridge high above the ground (left panel), an interviewer they encountered was rated as more attractive compared to a bridge closer to the ground (right panel).

SITUATIONAL DETERMINANTS OF AGGRESSION:

Heat Media Violence Violent video games There are higher rates of violent crimes, but not non-violent crimes, as the number of days above 90 degrees Fahrenheit increase. This relationship still held when you took into account unemployment rates, per capita income and average age of the residents.

EXAMPLES OF SCARCITY:

- When Dade county banned phosphate based soaps, citizens smuggled phosphate soaps in from neighboring counties. They claimed that the phosphate based soaps cleaned their laundry better, and made their clothes smell fresher.
- Music by Kurt Cobain, Elvis, The Doors is valued more after their deaths.
- Paintings by Van Gogh, Monet, Picasso are valuable because they are scarce.
- Fantastic Four #1, X-men #94 or Spider-Man #1 are more expensive comic books because there are very few copies of them compared to later issues.
- The subjective value of Cabbage Patch dolls, Tickle me Elmo, and Play Station 2, Wii were inflated when the demand was high and the availability is low.
- In the Scientific American Frontiers video Fat and Happy, children are more likely to binge on junk food when they are provided the opportunity if they are restricted at home.
- A person who sells a used car, stereo, refrigerator, etc. can make the item appear "scarce" by scheduling people to view the item at the same time.

STUDENT EXAMPLES OF SCARCITY

I have a friend who finds he only wants to date women that are already married or have a serious boyfriend. It is like he becomes obsessed with trying to go out with them. Every once and a while a woman will break up with her boyfriend and start to date him, but then he finds them unappealing; there is no longer a challenge for him. They become too convenient.

THE CANNON-BARD THEORY OF EMOTION

The Cannon-Bard theory of emotion, also known as the Thalamic theory of emotion, is a physiological explanation of emotion developed by Walter Cannon and Philip Bard. Cannon-Bard theory states that we feel emotions and experience physiological reactions such as sweating, trembling, and muscle tension simultaneously.

HOW THE CANNON-BARD THEORY WORKS

More specifically, it is suggested that emotions result when the thalamus sends a message to the brain in response to a stimulus, resulting in a physiological reaction.¹ For example: I see a snake --> I am afraid, and I begin to tremble. According to the Cannon-Bard theory of emotion, we react to a stimulus and experience the associated emotion at the same time. The physical reactions are not dependent upon the emotional reaction, or vice versa.² When an event occurs, the thalamus transmits a signal to the amygdala. The amygdala is a small, oval-shaped structure in the brain that plays an important role in emotional processing, including emotions such as fear and anger. The thalamus also sends signals to the autonomic nervous system, resulting in physical reactions such as muscle tension, shaking, and sweating.

EXAMPLES

You can see how the Cannon-Bard theory might be applied by looking at any experience where you have an emotional reaction. While you might immediately think of negative emotional responses, it also applies to positive emotions as well.

A FRIGHTENING EXPERIENCE

For example, imagine that you are walking to your car through a darkened parking garage. You hear the sounds of footsteps trailing behind you, and spot a shadowy figure slowly following you as you make your way to your car. According to the Cannon-Bard theory of emotion, you will experience feelings of fear and physical reaction at the same time. You will begin to feel fearful, and your heart will begin to race. You rush to your car, lock the doors behind you, and rush out of the parking garage to head home.

A NEW JOB

Imagine that you are starting a new job. Your first day can be stressful. You'll be meeting new co-workers, making first impressions, learning more about your role, and participating in training or meetings. Cannon-Bard theory suggests that you would experience both physical and emotional signs of stress simultaneously. You might feel nervous and experience an upset stomach.

A DATE

Imagine that you are going on a date with someone you recently met. You really like this person and are excited to spend time with them. You experience both physical and emotional responses, including feelings of happiness and excitement as well as sweaty palms and a rapid heartbeat.

JAMES-LANGE THEORY

Cannon-Bard theory was formulated as a reaction to the James-Lange theory of emotion. Where James-Lange theory represented a physiological explanation for emotions, the Cannon-Bard theory represents a neurobiological approach. William James's theory suggested that people first experience a physiological reaction in response to a stimulus in the environment. People then experience some sort of physiological reaction to this stimulus which is then labeled as an emotion. For example, if you encounter a growling dog, you might begin to breathe rapidly and tremble. James-Lange theory would then suggest that you would label those feelings as fear.

Cannon's work instead suggested that emotions could be experienced even when the body does not reveal a physiological reaction. In other cases, he noted, physiological reactions to different

emotions can be extremely similar. Cannon and Bard instead suggested that the experience of emotion was not dependent upon interpreting the body's physiological reactions. Instead, they believed that the emotion and the physical response occur simultaneously and that one was not dependent upon the other.

SCHACTER-SINGER THEORY

Another more recent theory is the Schacter-Singer theory of emotion (also known as two-factor) theory, which takes a cognitive approach. The Schacter-Singer theory draws on elements of both James-Lange theory and Cannon-Bard theory, proposing that physiological arousal occurs first but that such reactions are often similar for different emotions. The theory suggests that the physiological reactions must be cognitively labeled and interpreted as a particular emotion.

CRITICISMS

Criticisms suggest that Cannon-Bard theory places too much emphasis on the role that the thalamus plays in emotions while largely ignoring other parts of the brain. The thalamus is part of the limbic system and does play an important part in the experience of emotions, but more recent research suggests that the process is more complex than the Cannon-Bard theory suggests. The basic assumption of Cannon-Bard theory, that physical reactions do not lead to emotions, has been refuted by a number of studies. Research has shown that when people are asked to make a particular facial expression, such as frowning or smiling, they are more likely to also experience an emotion connected to that expression.

KEY TAKEAWAYS

Key Points

- The appraisal theory of emotion proposes that emotions are extracted from our “appraisals” (i.e., our evaluations, interpretations, and explanations) of events. These appraisals lead to different specific reactions in different people.
- Psychologist Magda Arnold made early advancements in appraisal theory, proposing that an initial appraisal begins the emotional sequence by arousing both the appropriate physiological reactions and the emotional experience itself.
- In 1991, psychologist Richard Lazarus built on appraisal theory to develop cognitive-mediation theory. This theory still asserts that our emotions are determined by our appraisal of the stimulus, but it suggests that immediate, unconscious appraisals mediate between the stimulus and the emotional response.
- Lazarus also distinguished between primary appraisal, which seeks to establish the significance or meaning of an event, and secondary appraisal, which assesses the ability of the individual to cope with the consequences of the event.

RICHARD LAZARUS

Psychologist Richard Lazarus (1991) adapted Arnold's work slightly in the development of his cognitive-mediation theory, which asserts our emotions are determined by our appraisals of stimuli. This appraisal mediates between the stimulus and the emotional response, and it is immediate and often unconscious. In contrast to the Schacter-Singer theory of emotions, which views emotion as an outcome of the interaction between physiological arousal and cognition, Lazarus argued that the appraisal precedes cognitive labeling, simultaneously stimulating both the physiological arousal and the emotional experience itself.

Lazarus argued that the cognitive activity involved in interpreting emotional context could be conscious or unconscious and may or may not take the form of conceptual processing. He stressed that the quality and intensity of emotions are controlled through cognitive processes, which mediate the relationship between the person and the environment through coping strategies, which in turn are the basis of the emotional reaction.

In his research, Lazarus specified two major types of appraisal methods: 1) primary appraisal, which seeks to establish the significance or meaning of an event, and 2) secondary appraisal, which assesses the ability of the individual to cope with the consequences of the event. In the specific context of emotion and stress, Lazarus described primary appraisals as judgments about the degree of potential harm or threat to well-being that a stressor might introduce. The perception of a threat then triggers this secondary appraisal—judgment of the options available to cope with the stressor—as well as perceptions of how effective such options will be.

EMOTION REGULATION

While there are many ways to influence one's emotional state for the better, emotion regulation often involves what experts call "down-regulation," or reducing the intensity of emotions. A grieving person might down-regulate his sadness by recalling something amusing. An anxious person may cope by distracting herself from the thought that is causing her anxiety. Emotion regulation can also include "up-regulation," or amping up one's emotions, which can be useful when an imminent danger or challenge calls for a healthy dose of anxiety or excitement. The process model of emotion regulation proposed by psychologist James Gross emphasizes that people can act to control their emotions at different points in time—including before they feel an emotion ("antecedent-focused emotion regulation") and after they have already begun to react emotionally ("response-focused emotion regulation").

EMOTION REGULATION IS IMPORTANT

Unlike small children, adults are expected to be able to manage their emotions—especially anxiety and anger—in a manner that is socially acceptable. When emotional control fails, people often say or do things they later regret and wish they had been able to keep their emotions in check. Emotion dysregulation is a component of certain forms of mental illness. Over time, it could have a negative impact on one's personal well-being and social relationships.

EMOTION DYSREGULATION

"Emotion dysregulation" is the term used to describe an inability to regularly use healthy strategies to diffuse or moderate negative emotions. While all people occasionally use less than ideal emotion regulation strategies, individuals who regularly experience what feels like overwhelming, intense negative emotions are much more likely to rely on unhealthy strategies, like self-injury. What causes emotions to feel so overwhelming? It is really important to note that the experience of an emotion per se is not what leads to difficulties. It is the interpretation of this emotion that tends to ratchet up feelings and a sense of not being able to tolerate them. We call this a "vicious emotional cycle." Emotions, thoughts, and our behavior are all linked together.

For instance, consider this common scenario: A friend walks right past you in the hallway without acknowledging you and you immediately have a rapid fire set of feelings, like confusion or disappointment or self-doubt or anger, that turns quickly into a series of thoughts about that event (e.g., "What did I do wrong?" "I'll bet that she is mad at me for that thing that happened a few weeks

ago...""I am sure it was nothing, I am being oversensitive, she was probably in a hurry somewhere. But still..."). This initial cascade can lead to intense or acute feelings (e.g., frustration, panic, insecurity) and you may have a strong desire to not be feeling the negative feelings coming up. This desire turns into action: you do something (e.g., go home and dwell on it; stop communicating with your friend; get a tasty treat to make you feel better or take your mind off it). Sounds familiar?

This cycle can become vicious and/or a typical go-to pattern over time. Unless something is done to change the cycle, continued avoidance of the feelings associated with that friend or event may lead to additional negative thoughts and feelings about that person. This further supports one's initial interpretation of the event and can then lead to even more negative thoughts and feelings (e.g. "Our friendship is ending; she never really liked me anyway. What will happen if she shares what she knows about me to others? Will I lose more friends?? Oh no, it is all happening again!"). It is easy to see how even a small event can cascade into something hugely triggering. This cycle can be even more intense when the events that occur are more serious or somehow tie into earlier negative experiences, like trauma or abuse.

WHAT IS CONFLICTS: SOURCES AND TYPES

Stress and Coping: Concept, Models, Type A, B, C, D behaviors, Stress management strategies [Biofeedback, Music therapy, Breathing exercises, Progressive Muscular Relaxation, Guided Imagery, Mindfulness, Meditation, Yogasana, Stress Inoculation Training]?

CONFLICTS: SOURCES AND TYPES

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STRESS AND COPING: CONCEPT, MODELS, TYPE A, B, C, D BEHAVIORS,

Conflicts are natural in all walks of daily life – both at workplace and home. Thus, conflict is ever present and both charming and maddening. But conflict is a complex and big subject. There are many sources of conflict. Conflict occurs when individuals or groups are not obtaining what they need or want and are seeking their own self-interest. Sometimes the individual is not aware of the need and unconsciously starts to act out. Other times, the individual is very aware of what he or she wants and actively works at achieving the goal. It would be better to identify conflict at an early stage and come to an understanding.

The concept of conflict is controversial. Psychologists and sociologists have given different meanings. It is being defined as a process by few, an obstructive behavior, and goal incompatibility by others. Conflict can be expressed as: Conflict is a process, where perception (real or otherwise) leads to disruption of desirable state of harmony and stability in an interdependent world.

CHARACTERISTICS OF CONFLICT:

1. Conflict is a Process:

Conflict occurs in 'layers'. First layer is always misunderstanding. The other layers are differences of values, differences of viewpoint, differences of interest, and interpersonal differences. It is also called a process because it begins with one party perceiving the other to oppose or negatively affect its interests and ends with competing, collaborating, compromising or

avoiding.

2. CONFLICT IS INEVITABLE:

Conflict exists everywhere. No two persons are the same. Hence they may have individual differences. And the differences may be because of values or otherwise, lead to conflict. Although inevitable, conflict can be minimized, diverted and/or resolved. Conflict develops because we are dealing with people's lives, jobs, children, pride, self-concept, ego and sense of mission. Conflict is inevitable and often good, for example, good teams always go through a "form, storm, norm and perform" period.

3. CONFLICT IS A NORMAL PART OF LIFE:

Individuals, groups, and organisations have unlimited needs and different values but limited resources. Thus, this incompatibility is bound to lead to conflicts. The conflict is not a problem, but if it is poorly managed then it becomes a problem.

4. PERCEPTION:

It must be perceived by the parties to it, otherwise it does not exist. In interpersonal interaction, perception is more important than reality. What we perceive and think affects our behaviour, attitudes, and communication.

5. OPPOSITION:

One party to the conflict must be perceiving or doing something the other party does not like or want.

6. INTERDEPENDENCE AND INTERACTION:

There must be some kind of real or perceived interdependence. Without interdependence there can be no interaction. Conflict occurs only when some kind of interaction takes place.

7. EVERYONE IS INFLICTED WITH CONFLICT:

Conflict may occur within an individual, between two or more individuals, groups or between organisations.

8. CONFLICT IS NOT UNIDIMENSIONAL:

It comes into different ways in accordance with degree of seriousness and capacity. At times, it may improve even a difficult situation.

CONCEPT OF CONFLICT MANAGEMENT:

'Conflict management is the principle that all conflicts cannot necessarily be resolved, but learning how to manage conflicts can decrease the odds of non-productive escalation. Conflict management involves acquiring skills related to conflict resolution, self-awareness about conflict modes, conflict communication skills, and establishing a structure for management of conflict in your environment.' All members of every organisation need to have ways of keeping conflict to a minimum – and of solving problems caused by conflict, before conflict becomes a major obstacle to your work.

TYPES OF CONFLICT:

Conflicts can be of different types as described below: On the basis of involvement:

Conflicts may be intrapersonal (conflict with self), interpersonal (between two persons) and

organisational. Organizational conflict, whether real or perceived, is of two types -intraorganizational and interorganizational. Interorganizational conflict occurs between two or more organizations.

Different businesses competing against each other are a good example of interorganizational conflict. Intraorganizational conflict is the conflict within an organization, and can be examined based upon level (e.g. department, work team, individual), and can be classified as interpersonal, intragroup and intergroup.

Interpersonal conflict- once again- whether it is substantive or affective, refers to conflict between two or more individuals (not representing the group of which they are a part of) of the same or different group at the same or different level, in an organization. Interpersonal conflict can be divided into intergroup and intragroup conflict. While the former— intragroup- occurs between members of a group (or between subgroups within a group), intergroup- occurs between groups or units in an organization.

ON THE BASIS OF SCOPE:

Conflicts may be substantive and Affective. A substantive conflict is associated with the job, not individuals, while an affective conflict is drawn from emotions. Substantive conflicts may be over the facts of a situation, the method or means of achieving a solution to the problem, ends or goals, and values. Thus it includes task conflict and process conflict in its scope. Procedural conflicts can include disagreements about factors such as meeting dates and times, individual task assignments, group organization and leadership, and methods of resolving disagreements. Unresolved procedural conflicts can prevent work on collaborative projects. Substantive conflict can enhance collaborative decision-making. Substantive conflict is also called performance, task, issue, or active conflict.

On the other hand, an affective conflict (also called as relationship or opposite of agreeable conflict) deals with interpersonal relationships or incompatibilities and centres on emotions and frustration between parties. Affective conflicts can be very destructive to the organisation, if remains unresolved. Relationship conflict comes under the scope of affective conflicts. An affective conflict is nearly always disruptive to collaborative decision-making. The conflict causes members to be negative, irritable, suspicious, and resentful. For example, when collaborators disagree on the recognition and solution to a task problem because of personal prejudices (e.g. prejudices stemming from strong social, political, economic, racial, religious, ethnic, philosophical, or interpersonal biases) they are seldom able to focus on the task.

ON THE BASIS OF RESULTS:

Conflict can be Constructive or Destructive, creative or restricting, and positive or negative. Destructive conflicts are also known as dysfunctional conflicts, because such conflicts prevent a group from attaining its goals. Conflict is destructive when it takes attention away from other important activities, undermines morale or self-concept, polarises people and groups, reduces cooperation, increases or sharpens difference, and leads to irresponsible and harmful behaviour, such as fighting, name-calling.

On the other hand, constructive conflicts are also known as functional conflicts, because they support the group goals and help in improving performance. Conflict is constructive when it results in clarification of important problems and issues, results in solutions to problems, involves people in resolving issues important to them, causes authentic communication, helps release emotion,

anxiety, and stress, builds cooperation among people through learning more about each other; joining in resolving the conflict, and helps individuals develop understanding and skills.

ON THE BASIS OF SHARING BY GROUPS:

Conflicts may be Distributive and Integrative. Distributive conflict is approached as a distribution of a fixed amount of positive outcomes or resources, where one side will end up winning and the other losing, even if they do win some concessions. On the other hand, integrative – Groups utilizing the integrative model see conflict as a chance to integrate the needs and concerns of both groups and make the best outcome possible. This type of conflict has a greater emphasis on compromise than the distributive conflict. It has been found that the integrative conflict results in consistently better task related outcomes than the distributive conflict.

ON THE BASIS OF STRATEGY:

Conflicts may be competitive and cooperative. Competitive conflict is accumulative. The original issue that began the conflict becomes irrelevant. The original issue is more of a pretext than a cause of the conflict. Competitive conflict is marked by the desire to win the fight or argument, even if winning costs more and causes more pain than not fighting at all. Costs do not matter in competitive conflict, and therefore, irrationality remains its main mark. Competitive conflict is characterized by fear, which is one of the important ingredients in a conflict becoming irrational. If one is personally invested in the outcome, this too leads to irrational conclusions, especially if issues of self-esteem, whether personal or national, are involved.

Competitive conflict can either begin by, or be rationalized by, conflicts of ideology or principle. Even more, when the desire to win overtakes any specific reason for the conflict, irrationally develops. Importantly in history, when powers are roughly equal, such as the World War I alliances were, conflict that becomes competitive and irrational nearly always develops. In economic competition customers are the winners and the firms may be at risk. But in sports competition is encouraged. In a cooperative situation the goals are so linked that everybody 'sinks or swims' together, while in the competitive situation if one swims, the other must sink. A cooperative approach aligns with the process of interest-based or integrative bargaining, which leads parties to seek win-win solutions. Disputants that work cooperatively to negotiate a solution are more likely to develop a relationship of trust and come up with mutually beneficial options for settlement.

ON THE BASIS OF RIGHTS AND INTERESTS:

Conflict of rights means where people are granted certain rights by law or by contract or by previous agreement or by established practice. If such a right is denied, it will lead to conflict. Such a conflict is settled by legal decision or arbitration, not negotiation. On the other hand conflict of interests means where a person or group demands certain privileges, but there is no law or right in existence. Such a dispute can be settled only through negotiation or collective bargaining.

STAGES OF CONFLICT:

A manager must know various stages of conflict to handle it. The solution to conflict becomes easy before it becomes serious, if he knows of the real issue behind the conflict and how the conflict developed. Normally a conflict passes through the following stages:

- a. People recognise lack of resources, diversity of language or culture. Sensitiveness may possibly result in conflict.

- b. If there are serious differences between two or among more than two groups, the latent conflict in a competitive situation may turn into conflict.
- c. An incident may trigger a latent conflict into an open conflict
- d. Once a problem has been solved, the potential for conflict still remains in the aftermath. In fact the potential is bigger than before, if one party perceives that the resolution has resulted into win-lose situation.

ARE CONFLICTS BAD AND UNDESIRABLE?

There are three viewpoints. The traditionalists view conflict as bad and be avoided. In most of the cultures, this is what is being taught – ‘If you cannot speak well, keep mum,’ don’t fight with anyone’, and alike. The followers of human relations school opine that conflict is natural and can be functional at sometime and dysfunctional at other time. According to them, conflict provides an avenue to know of opinions and an opportunity for creativity and persuasion. Thus, it calls for an open approach to conflict. The integrationists view conflict as inevitable and stimulating conflict to some extent is helpful. Conflict is viewed as a positive force except that when it is misdiagnosed, mismanaged, or improperly avoided. We are of the opinion that conflicts are inevitable, not always bad or the same as discomfort, but key to them is proper diagnosis and their resolution. Conflict is often needed as it-

- a. Helps to raise and address problems,
- b. Energizes work to be on the most appropriate issues,
- c. Helps people “be real”, for example, it motivates them to participate, and
- d. Helps people learn how to recognize and benefit from their differences.

CONFLICT BECOMES A PROBLEM WHEN IT:

- a. Hampers productivity,
- b. Lowers morale,
- c. Causes more and continued conflicts, and
- d. Causes inappropriate behaviours.

CONFLICT INDICATORS:

- a. Body language
- b. Colleagues not speaking to each other or ignoring each other
- c. Deliberately undermining or not co-operating with each other, to the downfall of the team
- d. contradicting and bad-mouthing one another
- e. Disagreements, regardless of issue
- f. Withholding bad news
- g. Surprises
- h. Strong public statements
- i. Airing disagreements through media
- j. Conflicts in value system
- k. Desire for power
- l. Increasing lack of respect

- m. Open disagreement
- n. Lack of candour on budget problems or other sensitive issues
- o. Lack of clear goals
- p. No discussion of progress, failure relative to goals, failure to evaluate the superintendent fairly, thoroughly or at all
- q. Factions meeting to discuss issues separately, when they affect the whole organisation
- r. One group being left out of organising an event which should include everybody
- s. Groups using threatening slogans or symbols to show that their group is right and the others are wrong.

CAUSES/ REASONS/SOURCES OF CONFLICTS:

Conflicts may be caused by any one or more of the following reasons:

COGNITIVE (RECOGNITION AND UNDERSTANDING) DISSONANCE (DIFFERENCE OF OPINION):

It is a conflict between convergent (ability to narrow the number of possible solutions to a problem by applying logic and knowledge) and divergent thinking (thinking outwards instead of inward).

STATUS:

Status is a state, condition, or situation. When there is a need for status and a "wrong" person is promoted.

INCONGRUENCE:

A party is required to engage in an activity that is incongruent with his or her needs or interests.

INCOMPATIBILITY:

A party holds behavioural preferences like attitudes, values, skills, goals, and perceptions, the satisfaction of which is incompatible with another person's implementation of his or her preferences.
Economics: Insufficient remuneration to employees.

STRESS:

Conflicts from stress from external sources; i.e., functional or dysfunctional situations.
Poor or Inadequate Organisational Structure and Lack of Teamwork.

SEEKING POWER:

Often a conflict for power struggle takes place when everyone wants to be a leader and nobody wants to be a follower.

WEAK LEADERSHIP:

Conflict is bound to result if someone of less stature leads a more qualified and experienced worker.
Arbitrary interpretation and application of rules and policies: Lack of transparency and openness creates dissatisfaction among the affected people.

DIFFERING VIEWPOINTS AMONG COLLEAGUES ABOUT EACH OTHER:

In case of joint action two parties may have partially exclusive behavioural preferences.

MANAGERIAL ACTIONS:

Poor communication (employees being not informed of new decisions, programmes etc., not involved in decision making, and rumor mongering allowed); insufficient resources (Disagreement on allotment of work, stress from inadequate financial, equipment, facilities, and other resources and privileges); absence of personal chemistry between managers and employees (both sides having rigidity, dislike for absence of self- traits); lack of clarity in roles and responsibilities, arbitrariness in employees' performance appraisal; weak leadership, and inconsistent, too-strong, or uninformed leadership (lack of openness, buck-passing with little follow-through, lingering on issues, first-line managers failing to understand their subordinates' jobs). All these factors cause dissatisfaction.

CONFLICT MANAGEMENT STYLES:

Conflict management must aim at minimizing affective conflicts at all levels, attain and maintain a moderate amount of substantive conflict, and also to match the status and concerns of the two parties in conflict. Many styles of conflict management behavior have been researched in the past century. Mary Parker Follett described them as domination, compromise, and integration (involves openness, exchanging information, looking for alternatives, and examining differences to solve the problem in a manner that is acceptable to both parties).

STRESS: COPING WITH LIFE'S

Coping usually involves adjusting to or tolerating negative events or realities while attempting to maintain your positive self-image and emotional equilibrium. Coping occurs in the context of life changes that are perceived to be stressful. Psychological stress is usually associated with negative life changes, such as losing a job or loved one. However, because all changes require some sort of adaptation, even positive changes, such as getting married or having a child, can be stressful. Changes are stressful because changes require us to adjust and to adapt. Experiencing too many changes within a brief time period often creates a perception that we are not in control of important events. This perception contributes to low self-esteem and may even contribute to the development of anxiety or depression. In some cases, physical illnesses may develop or be exacerbated when a person's capacity to adapt to change is overwhelmed by too much change.

Coping involves adjusting to unusual demands, or stressors, and thus requires the mobilization of greater effort and the use of greater energy than is required by the daily routines of life. Prolonged mobilization of effort can contribute to elevated levels of stress-related hormones and to eventual physical breakdown and illness. Stressors that require coping may be acute, such as a change in residence or onset of marital problems. Stressors also occur that are of longer duration, such as chronic pain, chronic illness, or enduring financial problems. The effect of many acute stressors that occur within a relatively brief period of time may be cumulative and profound. Thus, the individual who experiences a marital separation, the death of an aging parent, and a change in his or her job within a brief period of time may find himself or herself struggling to adjust to maintain his or her physical and emotional health.

WHAT ARE SOME COMMON COPING STRATEGIES?

Some common coping mechanisms include:

- Lowering your expectations

- Asking others to help or assist you
- Taking responsibility for the situation
- Engaging in problem solving
- Maintaining emotionally supportive relationships
- Maintaining emotional composure or, alternatively, expressing distressing emotions
- Challenging previously held beliefs that are no longer adaptive
- Directly attempting to change the source of stress
- Distancing yourself from the source of stress
- Viewing the problem through a religious perspective

Experts agree that coping is a process rather than an event. Thus, an individual may alternate between several of the above coping strategies in order to cope with a stressful event. Individuals differ in particular styles of coping or preferences for using certain coping strategies over others. These differences in coping styles are usually reflective of differences in personality. Rigidity in coping is less likely to produce a desirable outcome than is flexibility in coping, or being able to fit the most appropriate coping strategy to the demands of different situations. It should be noted, however, that some situations that require coping are likely to elicit similar coping responses from most people. For example, work-related stressors are more likely to elicit problem-solving strategies. Stressors that are perceived to be changeable are more likely to elicit problem-solving strategies while stressors perceived to be unchangeable are more likely to elicit social support seeking and emotion-focused strategies. What can we do to protect ourselves against stress and therefore enhance our prospects for successful coping? Perhaps the most important strategy is to maintain emotionally supportive relationships with others. A vast field of research demonstrates that emotional support buffers individuals against the negative impact of stress.

It is especially important to evaluate your overall lifestyle when encountering significant stress. Engaging in stress-reducing activities can also be a helpful overall approach to coping with stressors. Examples include:

- Getting enough good quality sleep
- Eating a well-balanced diet
- Exercising on a regular basis
- Taking brief rest periods during the day to relax
- Taking vacations away from home and work
- Engaging in pleasurable or fun activities every day
- Practicing relaxation exercises such as yoga, prayer, meditation, or progressive muscle relaxation
- Avoiding use of caffeine and alcohol

COPING SKILLS

The transactional **model** of stress and coping developed by Lazarus and Folkman (1987) explained coping as a phenomenon that involves both cognitive and behavioral responses that individuals use in an attempt to manage internal and/or external stressors perceived to exceed their personal resources. It is safe to say that coping with stressful and anxiety-provoking situations is first on the list of an athlete's job description; and failure to do so will most likely result in subpar athletic performance. Omar-Fauzee, Daud, Abdullah, and Rashid (2009) observed that athletes at various levels of sport participation made use of a variety of effective coping strategies to help

deal with the multiple stressors they encounter.

The Athletic Coping Skills Inventory (ACSI-28) developed by Smith, Schultz, Smoll, and Ptacek (1995) is a popular self-report measure used to assess the various coping techniques implemented by athletes. The ACSI-28 measures the following domains: Coping with Adversity, Peaking Under Pressure, Goal Setting and Mental Preparation, Concentration, Freedom from Worry, Confidence and Achievement Motivation, and Coachability. Spieler et al. (2007) studied coping differences between starters and non-starting collegiate varsity football players and concluded that when combined with other factors such as size of high school when growing up as well as age, athletes who were part of the starting line-up scored higher on the Coping with Adversity domain.

THE EFFECT OF PERSONALITY TYPES ON INDIVIDUALS WORK-RELATED BEHAVIORS

In literature, it is seen that personality psychologists are interested in human wholeness, and attempt to reveal out the complexity of human behaviors (Esmaeilpour et al., 2013: 405). Because personality is considered as a crucial component underlying human behaviors, researchers have focused on personality traits. Personality traits affect individuals' perceptions, appraisal of the environment, their emotional responses and attitudes. However, it is suggested that personality traits are examined as an important determinant of individuals' workplace behaviors (Kozako et al., 2013: 182).

For instance, whereas some people have positive and strong personality traits, others may have negative and weak traits which lead them to exhibit some favorable or undesirable work-related behaviors. Accordingly, this study aims to present some effects of Type A, B, C and D personalities on positive and negative work-related behaviors. Further, it purposes a classification as to which personality type results in negative or positive behaviors in workplaces. Type A individuals are often regarded "workaholics" as they take over multi-tasks and are strongly motivated to do extra work and to achieve success (Radsepehr et al., 2016: 2).

Related to these characteristics of Type A, it is possible to express that they experience increased performance and increased job satisfaction. However, even several researchers have examined the relationship between Type A and job satisfaction, results have been inconsistent and controversial. For example, the studies by Al-Mashaan (2001) and; Yazici and Altun (2013) found a positive correlation between Type A and job satisfaction. On the other hand, Jamal and Baba (2001); Kirkcaldy et al., (2002) and Bockhaus et al., (2012) report that Type A individuals have lower levels of job satisfaction. In addition, as Type A's have a competitive and ambitious nature, they are expected to exhibit aggressive behaviors in interpersonal relations at work (Batıgün and Şahin, 2006: 2). Vera-Villarreal et al. (2004); Faunce et al. (2004) and Mohan and Singh (2016) asserted that Type A personality characteristics are positively related to aggressive and hostile behaviors. In consideration of positive work behaviors, Sameen and Burhan (2014) and Hussein (2014) have indicated that Type A individuals tend to exhibit creative behaviors than others.

Due to Type A individuals prefer undertaking excessive responsibilities and new challenges, working under time pressure and have a greater commitment to their roles, it is expected that these individuals engage to their works (Baka and Derbis, 2012: 134). Studies of Hallberg et al., (2007); Moodley (2010); Baka and Derbis (2012) suggest that there is a positive relationship between Type A characteristics and work engagement. Consequently, it can be said that Type A individuals may exhibit both positive and negative work behaviors.

Type B individuals are considered easygoing and moderate thanks to their personality characteristics. For example, it can be said that Type B individuals are more flexible and can easily adapt to changing conditions easily (Radsepehr et al., 2016: 3). However, Type B's are regarded as the opposite of Type A individuals. In other words, they have a desire to be successful, but they are not excessively ambitious or competitive as Type A individuals are. Due to their fondness for being comfortable, they do their work at the last minutes, and even procrastinate. It can be expressed that Type B individuals exhibit procrastination behaviors more often in their worklife (Hussein, 2014: 2). Therefore, it can be inferred that Type B individuals use their time poorly and can not make efficient time schedules (Hisam et al., 2014: 1305). Type B individuals have better communication skills than Type A's, so they can easily communicate with others (Tokat elal., 2013: 1978). Thanks to Type B's good communication skills, they are supported others and are more likely to express their feelings. Moreover, as Type B's have no eyes on greater success, high positions and extreme gains, they are expected to be satisfied with their jobs (Darshani, 2014: 2).

On the other hand, because Type B individuals pay no attention to the time scheduling, they may spend more hours in their workplace for their co-workers and companies. In other words, they tend to participate in non-compulsory activities or roles and tend to display non-discretionary behaviors. Type C personality is regarded as a part of negative personality traits based on the individuals' some characteristics like incapability, non-assertiveness and passiveness. However, Type C individuals possess some positive traits such as dedicated focus on other people, exhibit cooperative behaviors and tendency to comply with external environment (Denollet, 1998: 981). Type C's seem kind, obedient, well-mannered, pragmatic and normative people who are preferred by others in work and social life (Durai, 2010: 390). On the other hand, these individuals considered as introvert and intelligent people who are interested in details, like to discover new things and are eager to achieve a successful career in the professional life (Ansari et al., 2013: 1004).

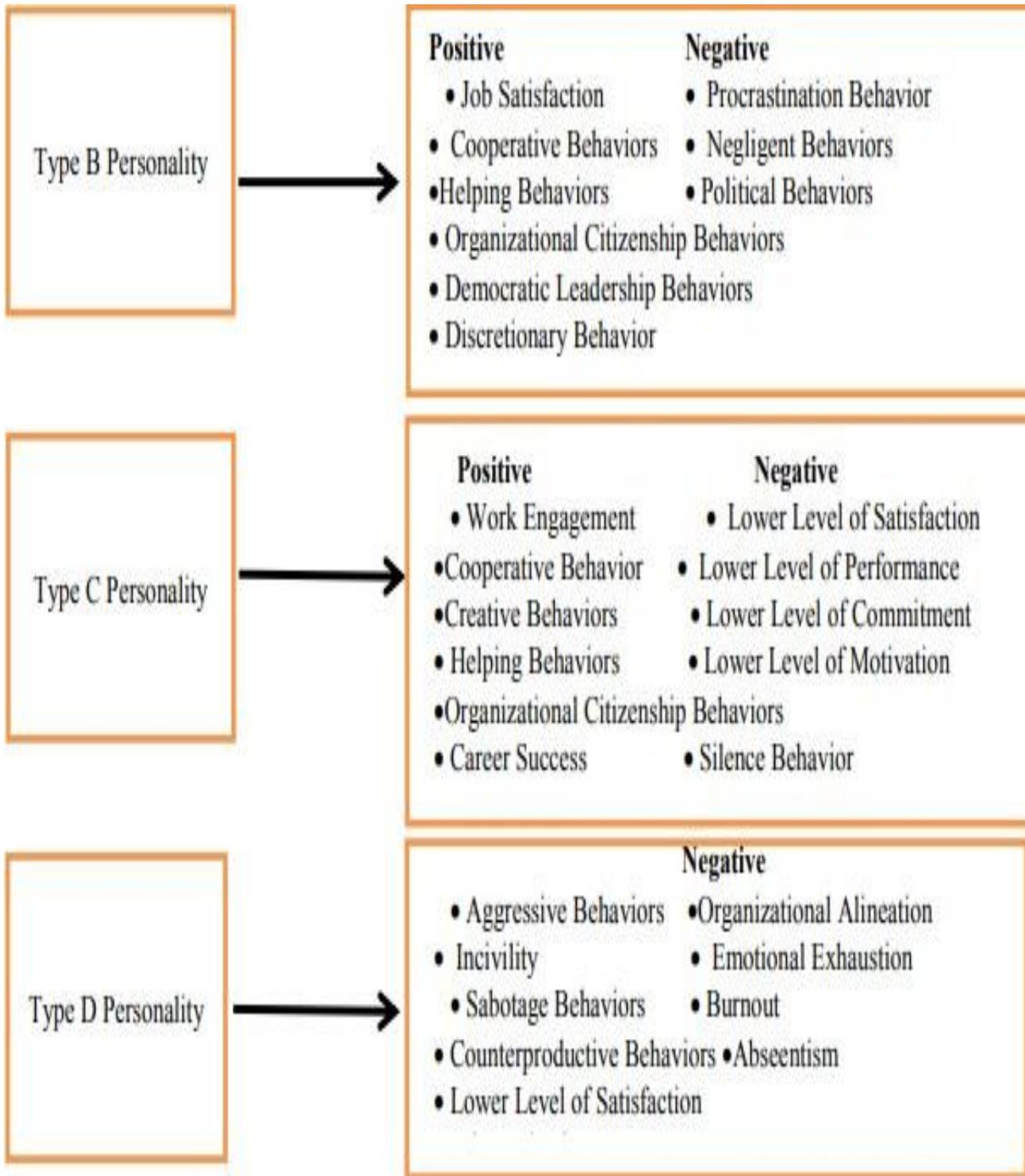
Moreover, type C individuals are obsessed with making visionary dreams come true and regarded as creative people (Atchity, 2012: 16). Therefore, it can be expressed that due to their altruistic and sensitive side, Type C's may display helping behaviors, cooperative and organizational citizenship behaviors and feel engaged in their work roles more than the others in the working environment. In addition, these individuals have more dispositions to exhibit creative behaviors thanks to their imaginations. From the pessimistic perspective, it is possible to infer that because of their negative emotions, type C's easily get unhappy and dissatisfied with their jobs. Thus, it is expected that their job performance, motivation and commitment levels decrease.

Type D or distressed personality examined in the extent of other negative personality traits due to the characteristics of negative and pessimistic view in all field of life, feeling of anxious, unsatisfying and always experience negative emotions. Owing to these characteristics lead Type D individuals build fewer friendly relationships, have fewer friends and feel uncomfortable with strangers in work and social life (Radsepehr et al., 2016: 3- 4). Depending on these fewer social relationships, they perceive lower levels of social support from others in their professional lives (Tekin et al., 2017: 173). However, Type D individuals feel tense and insecure in the working environment which causes them to keep other people at a distance. In the literature, studies suggest that.

Type D individuals suffer from higher levels of social alienation from their family members, friends and working colleagues (Ginting et al., 2016: 728). In addition, researchers assert that Type D

individuals get exhausted much more quickly than others and feel disengaged to their work. Therefore, it can be concluded that Type D individuals experience adverse work-related outcomes such as higher burnout, higher work-related stress and substantial problems in interacting with co-workers and managers (Reid, 2013: 9). Besides, it is asserted that Type D's are more absent from their works due to the physical and psychological illness, show a lower sense of personal accomplishment and perceive adverse working conditions (Mols and Denollet, 2010: 4- 6).

Besides, it can be noted that Type D individuals are expected to display some negative work-related behaviors such as absenteeism, incivility, sabotage and aggressive behaviors and counterproductive behaviors (Kanten et al., 2017: 605). When the literature has been reviewed, it can be said that personality types cause some positive and negative work-related outcomes.



Accordingly, this study aims to explain Type A, B, C, D personality's positive and negative effects on employees' attitudes and behaviors.

STRESS MANAGEMENT TIPS

People can learn to manage stress and lead happier, healthier lives. Here are some tips to help you

keep stress at bay.

- Keep a positive attitude.
- Accept that there are events that you cannot control.
- Be assertive instead of aggressive. Assert your feelings, opinions, or beliefs instead of becoming angry, defensive, or passive.
- Learn and practice relaxation techniques; try meditation, yoga, or tai-chi for stress management.
- Exercise regularly. Your body can fight stress better when it is fit.
- Eat healthy, well-balanced meals.
- Learn to manage your time more effectively.
- Set limits appropriately and learn to say no to requests that would create excessive stress in your life.
- Make time for hobbies, interests, and relaxation.
- Get enough rest and sleep. Your body needs time to recover from stressful events.
- Don't rely on alcohol, drugs, or compulsive behaviors to reduce stress.
- Seek out social support. Spend enough time with those you enjoy.
- Seek treatment with a psychologist or other mental health professional trained in stress management or biofeedback techniques to learn healthy ways of dealing with the stress in your life.

BIOFEEDBACK

Biofeedback is a mind-body technique that involves using visual or auditory feedback to gain control over involuntary bodily functions such as blood flow, blood pressure, and heart rate. This technique may be used to help alleviate symptoms of conditions including high blood pressure, chronic stress, headaches, pain, and anxiety. The goal of biofeedback is often to make subtle changes to the body that result in a desired effect. This might include relaxing certain muscles slowing heart rate or reducing feelings of pain. Some of the functions that people can learn to control include:

- Blood flow
- Blood pressure
- Heart rate
- Muscle tension
- Pain perception

By doing this, people are often able to improve their physical, emotional, and mental health. For example, biofeedback can also be used to help people better manage the symptoms of a condition. The Association for Applied Psychophysiology and Biofeedback defines biofeedback as a process that allows people to alter their physiological activity in order to improve health or performance.¹ Utilizing precise measurement instruments, information about the body's functions are provided to the user.

TYPES OF BIOFEEDBACK

There are many different types of biofeedback. The specific approach you choose to utilize might depend upon what you hope to accomplish and what your therapist or physician recommends. Some of the available options include:

BREATHING

Respiratory biofeedback involves wearing sensor bands around the chest and abdomen to monitor

breathing rates and patterns. With training, people can learn to have greater control over their breathing rates which can help in a variety of situations including when people experience anxiety.

HEART RATE

This type is known as heart rate variability biofeedback and there is some evidence that it might possibly be useful for a number of different disorders including asthma and depression.² Patients using this type of biofeedback wear a device connected to sensors in either the ears or fingers or sensors placed on the wrists, chest, or torso.

GALVANIC SKIN RESPONSE

This type of biofeedback involves measuring the amount of sweat on the surface of the skin. Galvanic skin response, also known as skin conductance, is a useful marker for detecting levels of emotional arousal. Aside from the obvious thermoregulatory function of sweat, emotional stimulation can also easily trigger sweating. The more strongly people are aroused, the stronger their skin conductance will be.

BLOOD PRESSURE

This type of biofeedback involves wearing a device that measures blood pressure. These devices provide information about the patient's blood pressure and often guide the user through relaxation techniques that may rely on visual cues, breathing exercises, or music.

While such devices have gained popularity, one study reviewing eight previous trials did not find convincing evidence that this type of biofeedback has any lasting long-term impact on hypertension.³

SKIN TEMPERATURE

In this form of biofeedback, patients wear sensors that detect blood flow to the skin. Because people often experience a drop in body temperature during times of stress, such devices can help people better detect when they are starting to feel distressed. A low reading on one of these monitors can indicate a need to utilize some stress management techniques.

BRAIN WAVES

This type of biofeedback, often referred to as neurofeedback, involves utilizing electroencephalography (EEG) to measure brain wave activity. Scalp sensors are connected to an EEG device. Neurofeedback is sometimes used as a non-invasive treatment for ADHD, pain, addiction, anxiety, depression, and other disorders. **Muscle Tension** In this type of biofeedback, sensors are placed at various points on the body and connected to an electromyography (EMG) device. This device detects changes in muscle tension over time by monitoring electrical activity that results in muscle contractions.

USES

Biofeedback has been used for a range of applications, including:⁴

- ADHD
- Anxiety
- Brain injuries
- Depression
- Digestive disorders such as irritable bowel syndrome
- High and low blood pressure

- Mental health conditions
- Migraines
- Pain
- Physical reactions to stress
- Post-traumatic stress disorder (PTSD)
- Relaxation and stress management
- Tension headaches

BIOFEEDBACK WORK?

Biofeedback teaches people to recognize the physical signs and symptoms of stress and anxiety such as increased heart rate, body temperature, and muscle tension. Scientists believe that it is often the stress response, the body's tendency to go into a state of "fight- or-flight" in order to deal with potential threats, that often exacerbate certain conditions.

DURING A TYPICAL BIOFEEDBACK SESSION:

- Electrical sensors will be connected to specific areas of your body, depending upon the type of response being measured.
- These sensors will be connected to a measurement device that will provide feedback on your physical responses.
- During your session, your therapist will guide you through different mental exercises that may involve visualization, meditation, breathing, or relaxation techniques.
- As you perform these activities, you will receive information on your physical response from the measurement device.

EFFECTIVENESS

Biofeedback is often considered a type of training rather than a treatment. With training and practice, biofeedback can be used to help people develop new skills that may help them to better cope or perform.

BIOFEEDBACK DEVICES

Biofeedback devices fall into two different categories. The first are those used by medical and mental health professionals. The second are those available on the consumer market for personal use.

CLINICAL BIOFEEDBACK DEVICES

Biofeedback devices utilized for clinical purposes are regulated by the U.S. Food and Drug Administration. These devices are often available through a biofeedback therapist's office or the office of another health practitioner.

PERSONAL USE BIOFEEDBACK DEVICES

A number of biofeedback devices can be purchased for personal, in-home use from various online retailers. Such devices often involve wearing sensors that record information and can then be plugged into a computer. Other wearable devices utilize sensors that then provide information via an app on your mobile device. These devices include wearable instruments ranging from muscle sensors to skin response units to brain wave monitors. Such devices make a variety of claims and target a number of different ailments such as migraines, pelvic floor weakness, snoring, depression,

ADHD, autism, and sleep disruptions.

REASONS TO USE BIOFEEDBACK

Like other approaches to treatment, biofeedback has both its own set of upsides and downsides. It may not be right for everyone, so it is important to consider the benefits and risks before you determine if it the best choice for your situation. So what are some of the reasons why you might consider using biofeedback?

IT CAN COMPLEMENT OTHER TREATMENTS

Biofeedback may appeal in situations where other treatments have not been effective or where people are unable to take certain medications. Because biofeedback is non-invasive, patients may prefer it in situations where other treatments may be more invasive or disrupting. Biofeedback training can also be used as one part of a treatment approach. People often choose to utilize biofeedback to augment other treatments.

YOU WANT TO BETTER MANAGE YOUR STRESS

Biofeedback also teaches people how to control their own responses in stressful situations, which can help people feel more in control. This can help people better manage the stress they may face in their daily life, cope with feelings of anxiety, or handle stress that results from another health condition.

THERE MAY BE OTHER BENEFITS

In addition to helping people better manage stress and other conditions, biofeedback can also have additional mental health benefits. The training process can help people learn new techniques for managing their anxiety and emotional responses.

MUSIC THERAPY

Music therapy—a type of expressive arts therapy that uses music to improve and maintain the physical, psychological, and social well-being of individuals—involves a broad range of activities, such as listening to music, singing, and playing a musical instrument. This type of therapy is facilitated by a trained therapist and is often used in hospitals, rehabilitation centers, schools, correctional facilities, nursing homes, and hospices.

HISTORY OF MUSIC THERAPY

Music has been used as a therapeutic tool for centuries and has been shown to affect many areas of the brain, including the regions involved in emotion, cognition, sensation, and movement. This fact, combined with the engaging nature of music and the diversity of music forms, makes music uniquely effective in the treatment of a wide array of physical and mental problems, including depression, anxiety, and hypertension. When traveling music groups played for hospitalized veterans during and after both World Wars, doctors and clinicians began to realize the powerful effects that music has on the healing process and requested that professional musicians be hired by the hospitals. This created a need for specialized training in the appropriate delivery of music as a therapeutic method.

Gradually, colleges and universities began to include music therapy as part of their curriculum, beginning with Michigan State University in 1944. In 1950, the first major professional organization for music therapists was formed, and it became known as the National Association for Music

Therapy (NAMT). In 1998, the American Music Therapy Association (AMTA) was formed out of a merger between the NAMT and the American Association for Music Therapy. The AMTA focuses on increasing awareness of and access to music therapy services while promoting the advancement of education, training, professional standards, and research in the field of music therapy.

WHO CAN BENEFIT FROM MUSIC THERAPY?

Music therapy can benefit many individuals. The diverse nature of music means it can be applied in the treatment of concerns both physical and psychological. In some instances, the therapeutic use of music has been able to help people in ways that other forms of therapy have not, as it can sometimes elicit responses that may not appear through more traditional forms of treatment. When people find it difficult to express themselves verbally, they may display a greater degree of interest and engagement in music therapy than they would in a more traditional form of therapy. No background in music is required for a person to benefit from this approach. Because music can evoke positive emotions and stimulate reward centers in the brain, music therapy is often able to alleviate symptoms of mental health concerns such as:

- Depression
- Mood-related concerns
- Anxiety
- Schizophrenia
- Substance dependency
- Autism
- Personality issues
- Insomnia
- Dementia

Music therapy can both assess and enhance cognitive, social, emotional, and motor functioning, and studies have shown positive results among individuals who have intellectual or physical difficulties, brain injuries, or Alzheimer's. This type of therapy has also been used in the treatment of physical ailments such as cancer and hypertension. The positive effects of music therapy are not limited to those coping with severe or long-lasting physical and psychological problems, and this therapy can benefit people in a variety of situations. Music is frequently used to reduce stress levels and pain perception among mothers in labor and has been associated with improvements in self-esteem, self-concept, verbal communication, prosocial behavior, socialization skills, group cohesion, and coping skills.

WHAT HAPPENS IN A MUSIC THERAPY SESSION?

The intervention methods employed in music therapy can be roughly divided into active and receptive techniques. When a person is making music, whether by singing, chanting, playing musical instruments, composing, or improvising music, that person is using active techniques. Receptive techniques, on the other hand, involve listening to and responding to music, such as through dance or the analysis of lyrics. Active and receptive techniques are often combined during treatment, and both are used as starting points for the discussion of feelings, values, and goals.

Music therapy can be conducted with individuals or in groups, and the music may be chosen by the

therapist or by the person in therapy. A music therapist will generally ensure the type and mode of the chosen form of music, as well as the timing of the music intervention, are appropriate for meeting the needs and goals of the individual in therapy. When introducing music, therapists often base their selections on the Iso principle, which states music is more likely to have influence if it matches an individual's current condition. Therapists therefore try to ensure the lyrics and melody of a selected piece of music are well matched with the mood and psychological state of the person in therapy.

Songwriting is commonly used in music therapy and may involve writing original songs or modifying existing ones, with the latter being a more structured approach to writing. A person might modify a song by changing some of the words or lines, adding new verses, or writing entirely new lyrics to match the existing tune. In cases when songs are freely composed, the therapist may provide an emotion or topic to serve as a starting point.

MUSIC THERAPY CAN BE USED IN A VARIETY OF WAYS:

- When a person experiences difficulty communicating after a stroke, singing words or short phrases set to a simple melody can often enhance speech production and fluency.
- A person with impaired motor skills might improve fine motor skills by playing simple melodies on a piano or tapping out a rhythm on drum pads. Listening to a rhythmic stimulus, such as a metronome, can also help a person initiate, coordinate, and time their movements.
- A therapist might play a piece of music for children with autism who have limited social skills and ask them to imagine the emotional state of the person who created the music or the person who is playing it. Doing so can help a person with autism develop or strengthen the ability to consider the emotions others are experiencing.
- Group drumming circles have been used to induce relaxation, provide an outlet for feelings, and foster social connectedness among members of a group. Group members might sit in a circle with a hand drum while the therapist leads them in drumming activities that may involve group members drumming one at a time or all at once. Those who are part of the circle may be asked to express how they feel by playing a rhythm on their drum or the group might be asked to improvise music as a means of increasing group cohesiveness.
- Music might be incorporated into guided imagery or progressive muscle relaxation techniques to enhance the effectiveness of these methods.

TRAINING FOR MUSIC THERAPISTS

Those wishing to become a music therapist must have at least a bachelor's degree in music therapy from an institution approved by the American Music Therapy Association (AMTA). Music therapy programs involve coursework as well as an internship in an educational and/or health care facility. After successfully completing one of the AMTA-approved programs, individuals must take the national examination offered by the Certification Board for Music Therapists (CBMT). If they are successful in the examination, they receive the credential Music Therapist-Board Certified (MT-BC), which is required for professional practice. Board certification is renewed every five years, and in order to maintain this credential, music therapists must retake the CBMT examination or complete 100 recertification credits within each five-year period.

LIMITATIONS OF MUSIC THERAPY

Music therapy generally produces positive results, but it is not recommended as a stand-alone

treatment for serious medical and psychiatric issues. While music may help to alleviate some of the symptoms of these conditions, other forms of treatment such as medication, physical therapy, or psychotherapy may also be necessary.

BREATHING TECHNIQUES

Take a deep breath in. Now let it out. You may notice a difference in how you feel already. Your breath is a powerful tool to ease stress and make you feel less anxious. Some simple breathing exercises can make a big difference if you make them part of your regular routine.

Before you get started, keep these tips in mind:

- Choose a place to do your breathing exercise. It could be in your bed, on your living room floor, or in a comfortable chair.
- Don't force it. This can make you feel more stressed.
- Try to do it at the same time once or twice a day.
- Wear comfortable clothes.

Many breathing exercises take only a few minutes. When you have more time, you can do them for 10 minutes or more to get even greater benefits. Most people take short, shallow breaths into their chest. It can make you feel anxious and zap your energy. With this technique, you'll learn how to take bigger breaths, all the way into your belly.

1. Get comfortable. You can lie on your back in bed or on the floor with a pillow under your head and knees. Or you can sit in a chair with your shoulders, head, and neck supported against the back of the chair.
2. Breathe in through your nose. Let your belly fill with air.
3. Breathe out through your nose.
4. Place one hand on your belly. Place the other hand on your chest.
5. As you breathe in, feel your belly rise. As you breathe out, feel your belly lower. The hand on your belly should move more than the one that's on your chest.
6. Take three more full, deep breaths. Breathe fully into your belly as it rises and falls with your breath.

BREATH FOCUS

While you do deep breathing, use a picture in your mind and a word or phrase to help you feel more relaxed.

1. Close your eyes if they're open.
2. Take a few big, deep breaths.
3. Breathe in. As you do that, imagine that the air is filled with a sense of peace and calm. Try to feel it throughout your body.
4. Breathe out. While you're doing it, imagine that the air leaves with your stress and tension.
5. Now use a word or phrase with your breath. As you breathe in, say in your mind, "I breathe in peace and calm."
6. As you breathe out, say in your mind, "I breathe out stress and tension."
7. Continue for 10 to 20 minutes.

EQUAL TIME FOR BREATHING IN AND BREATHING OUT

In this exercise, you'll match how long you breathe in with how long you breathe out. Over time, you'll

increase how long you're able to breathe in and out at a time.

1. Sit comfortably on the floor or in a chair.
2. Breathe in through your nose. As you do it, count to five.
3. Breathe out through your nose to the count of five.
4. Repeat several times.

Once you feel comfortable with breaths that last five counts, increase how long you breathe in and breathe out. You can work up to breaths that last up to 10 counts.

PROGRESSIVE MUSCLE RELAXATION

In this technique, you breathe in as you tense a muscle group and breathe out as you release it. Progressive muscle relaxation helps you relax physically and mentally.

1. Lie comfortably on the floor.
2. Take a few deep breaths to relax.
3. Breathe in. Tense the muscles of your feet.
4. Breathe out. Release the tension in your feet.
5. Breathe in. Tense your calf muscles.
6. Breathe out. Release the tension in your calves.
7. Work your way up your body. Tense each muscle group. This includes your legs, belly, chest, fingers, arms, shoulders, neck, and face.

MODIFIED LION'S BREATH

As you do this exercise, imagine that you're a lion. Let all of your breath out with a big, open mouth.

1. Sit comfortably on the floor or in a chair.
2. Breathe in through your nose. Fill your belly all the way up with air.
3. When you can't breathe in any more, open your mouth as wide as you can. Breathe out with a "HA" sound.
4. Repeat several times.

PROGRESSIVE MUSCULAR RELAXATION

Have you ever had an aching back or pain in your neck when you were anxious or stressed? When you have anxiety or stress in your life, one of the ways your body responds is with muscle tension. Progressive muscle relaxation is a method that helps relieve that tension.

- In progressive muscle relaxation, you tense a group of muscles as you breathe in, and you relax them as you breathe out. You work on your muscle groups in a certain order.
- When your body is physically relaxed, you cannot feel anxious. Practicing progressive muscle relaxation for a few weeks will help you get better at this skill, and in time you will be able to use this method to relieve stress.
- When you first start, it may help to use an audio recording until you learn all the muscle groups in order. Check your local library or a bookstore for progressive muscle relaxation audio recordings.
- If you have trouble falling asleep, this method may also help with your sleep problems.

THE PROCEDURE

You can use an audio recording to help you focus on each muscle group, or you can learn the order

of muscle groups and do the exercises from memory. Choose a place where you won't be interrupted and where you can lie down on your back and stretch out comfortably, such as a carpeted floor.

1. Breathe in, and tense the first muscle group (hard but not to the point of pain or cramping) for 4 to 10 seconds.
2. Breathe out, and suddenly and completely relax the muscle group (do not relax it gradually).
3. Relax for 10 to 20 seconds before you work on the next muscle group. Notice the difference between how the muscles feel when they are tense and how they feel when they are relaxed.
4. When you are finished with all of the muscle groups, count backward from 5 to 1 to bring your focus back to the present.

After you have learned how to tense and relax each muscle group, here's something else to try. When you have a very tense muscle, you can practice tensing and relaxing that muscle area without going through the whole routine.

THE MUSCLE GROUPS

The following is a list of the muscle groups in order and how to tense them. Remember to lie down when you do this. Remember to lie down when you do this.

Muscle group	What to do
Hands	Clench them.
Wrists and forearms	Extend them, and bend your hands back at the wrist.
Biceps and upper arms	Clench your hands into fists, bend your arms at the elbows, and flex your biceps.
Shoulders	Shrug them (raise toward your ears).
Forehead	Wrinkle it into a deep frown.
Around the eyes and bridge of the nose	Close your eyes as tightly as you can. (Remove contact lenses before you start the exercise.)
Cheeks and jaws	Smile as widely as you can.
Around the mouth	Press your lips together tightly. (Check your face for tension. You just want to use your lips.)
Back of the neck	Press the back of your head against the floor or chair
Front of the neck	Touch your chin to your chest. (Try not to create tension in your neck and head.)
Chest	Take a deep breath, and hold it for 4 to 10 seconds.
Back	Arch your back up and away from the floor or chair.
Stomach	Suck it into a tight knot. (Check your chest and stomach for tension.)
Hips and buttocks	Press your buttocks together tightly.
Thighs	Clench them hard.
Lower legs	Point your toes toward your face. Then point your toes away, and curl them downward at the same time. (Check the area from your waist down for tension.)

GUIDED IMAGERY FOR RELAXATION

You may have heard of guided imagery as a stress management technique, but do you know how it works, why it's useful, and how it measures up against other stress relievers? Guided imagery is widely used for Guided imagery is an effective stress management technique and has remained popular for several reasons. It can quickly calm your body and simultaneously relax your mind. It's pleasant to practice, and not overly difficult or intimidating to learn. And it can help you to de-stress in minutes, but can also be a useful strategy for maintaining resilience toward stress during difficult times. If this sounds like something you can use in your life, read more about when guided imagery is used, and how it may be a useful go-to stress reliever for you. Guided Imagery is a convenient and simple relaxation technique that can help you quickly and easily manage stress and reduce tension in your body. It's virtually as easy as indulging in a vivid daydream and, with practice, this technique can help you to better access your inner wisdom.

There are a few different ways to practice using guided imagery, including taking a class where you are "guided" by an instructor, using audio recordings, creating your own recordings, or using your inner voice and imagination. Here we'll examine the benefits and drawbacks of this simple and engaging stress management technique and explore how it compares to other methods so you can determine how guided imagery may fit into your life. Then we'll delve into the practice of guided imagery and the different ways of using it. We'll look at methods of using your own thoughts, simply because this takes the least amount of preparation and expense; however, you can also explore guided imagery at many yoga studios, with recordings, and through an experienced therapist. You can also record your own guided imagery tapes. First, let's take a closer look at the practice itself.

GUIDED IMAGERY'S EFFECTS ON THE BODY

Guided imagery has been found to provide significant stress reduction benefits, including physically relaxing the body quickly and efficiently and even helping participants get in touch with deeper levels of wisdom (held on a subconscious level) that would help them better manage their lives in ways that would reduce stress. The studies demonstrating the health benefits of imagery are so numerous that many hospitals are incorporating imagery as an option to help with treatment. Fortunately, it's a simple enough technique that it can be used at home as well, with positive results.

WHAT'S INVOLVED?

With the help of a guided imagery recording, a professional helper, or just one's own imagination, those who practice guided imagery get into a deeply relaxed state and envision, with great detail relating to all of the senses, a relaxing scene. This scene may be something in the natural world like a beautiful waterfall in Hawaii with sparkling and refreshing water at the bottom or a cool and dense forest where you may take a calming walk in your imagination. It could also be a relaxing or happy event such as a vividly-imagined scene where you discover a \$50 bill on the sidewalk and eat a delicious meal in a restaurant by the beach, or win the lottery and buy whatever you want. Those who use guided imagery for stress relief may also imagine a wise 'guide' with them, answering their questions and asking them questions that they must ponder in order to get to a better place in their lives. (This 'guide' is a representation of their subconscious mind that they aren't generally able to access.)

PRACTICING GUIDED IMAGERY:

Now that you understand the basics of this stress management tool, let's get into how you can practice it. The following are general guidelines to help you understand the process of guided imagery,

and be able to practice it on your own. Here's how to make guided imagery practice work for you.

GET COMFORTABLE

Get into a relaxed position, like the one you would use for meditation or self-hypnosis. If a lying-down position would likely put you to sleep, opt for a cross-legged position or recline in a comfortable chair. Try to position yourself in a way where your physical comfort won't be a distraction. Breathe From Your Belly Use diaphragmic deep breathing and close your eyes, focusing on "breathing in peace and breathing out stress." This means letting your belly expand and contract with your breath—if you find your shoulders rising and falling, you are likely carrying tension in your body and not breathing in the most relaxed way.

CHOOSE A SCENE AND VIVIDLY IMAGINE IT

Once you get to a relaxed state, begin to envision yourself in the midst of the most relaxing environment you can imagine. For some, this would be floating in the cool, clear waters off of a remote tropical island, where attractive people bring drinks and smooth music plays in the background. For others, this might be sitting by a fire in a secluded snow cabin, deep in the woods, sipping hot cocoa and reading the latest bestseller while wrapped in a plush blanket and fuzzy slippers. You may want to remember a time and place when you felt wonderful and relaxed (a "happy place" in your memory), a vividly-described scene from a book you love, or the way you imagine a place you've always wanted to visit.

RELAX

Stay here for as long as you like. Enjoy your 'surroundings', and let yourself be far from what stresses you. When you're ready to come back to reality, count back from ten or twenty, and tell yourself that when you get to 'one', you'll feel serene and alert, and enjoy the rest of your day. When you return, you'll feel calmer and refreshed, like returning from a mini-vacation, but you won't have left the room!

TIPS

1. You may want to use ambient sounds that compliment your imagery. This way, you feel more immersed in your 'environment', plus the sounds of real-life will be obscured.
2. You may also want to set an alarm, just in case you lose track of time or fall asleep. This way, you'll be more able to relax and let go, knowing that your schedule won't be in jeopardy.
3. As you get more practiced, you'll be able to go more deeply and quickly. You may also want to communicate with your subconscious mind, with the help of a tape you record for yourself or purchase, or a therapist.

MINDFULNESS

You may have heard that mindfulness — the ability to be fully present in the moment — can have numerous benefits, everything from decreased stress and sadness to increased levels focus and happiness, according to general mindfulness research. But what exactly is mindfulness? And, how can you recognize it and reap its many benefits? Mindfulness meditation practice is one way to truly experience the current moment and integrate that awareness into your everyday life. Here's everything you need to know to get started.

First, it's helpful to become familiar with the meaning of mindfulness, as well as how it relates to meditation. Mindfulness is the quality of being present and fully engaged with whatever we're doing at the moment — free from distraction or judgment, and aware of our thoughts and feelings

without getting caught up in them. We train in this moment-to-moment awareness through meditation, allowing us to build the skill of mindfulness so that we can then apply it to everyday life. In teaching the mind to be present, we are teaching ourselves to be live more mindfully – in the present, taking a breath, not beholden to reactive thoughts and feelings – which is particularly helpful when faced with challenging circumstances or difficult situations.

Wondering how many times a day you're in a mindful state? There's actually a 15-item questionnaire researchers use to measure mindfulness called the Mindful Attention Awareness Score (MAAS), that you can take to see where you stand – the higher the score, the greater your ability to be mindful. Scored lower than you'd like? Don't sweat it! It's simply a sign that you may benefit from some mindfulness meditation practice.

THE DIFFERENCE BETWEEN MINDFULNESS AND MEDITATION

Here's the thing that many people find confusing about mindfulness: it's not a temporary state of mind that is present during meditation and then vanishes for the rest of the day. Rather, mindfulness is a way of living in which – when we remember – we are able to step back and be in the present moment in any situation. Mindfulness doesn't eliminate stress or other difficulties; instead, by becoming aware of unpleasant thoughts and emotions that arise because of challenging situations, we have more choice in how to handle them in the moment – and a better chance of reacting calmly and empathetically when faced with stress or challenges. Of course, practicing mindfulness does not mean we never get angry – rather it allows us to be more thoughtful in how we want to respond, whether that's calmly and empathetically or perhaps, occasionally with measured anger. Meditation is the training ground for learning mindfulness. At first, we meditate to become familiar with the here and now for a limited period of time. Over time, however, regularly practicing mindfulness helps us develop the ability to be present throughout the day, every day.

HOW MINDFULNESS MEDITATION WORKS

Mindfulness meditation doesn't only change our mindset and perspective, it actually can change the shape of our brains. Generalized neuroimaging meditation studies found that 8 weeks of mindfulness meditation also changes our brains, rewiring them towards more positive thoughts and emotions. For starters, meditation allows us to move from high-frequency brainwaves to a lower frequency, which activates (and, potentially even more importantly, deactivates) certain areas of the brain. For example, it can decrease neurological connections to the medial prefrontal cortex, or the "me center," diminishing traits such as fear, stress, and anxiety. In turn, meditation can also build new pathways to the parts of the brain responsible for traits like focus and decision-making. And that's not all: mindfulness meditation can actually change the shape of the brain as well, a process known as neuroplasticity. Research shows that gray matter – the area of the brain responsible for emotional regulation, planning, and problem-solving – as well as the cortical thickness – responsible for learning and memory – both increase with regular meditation practice. Alternatively, the amygdala, which regulates how we feel stress, fear, and anxiety, decreases in size.

THE BENEFITS OF MINDFULNESS

The hype around mindfulness meditation is real. People who incorporate it into their lives often report heightened levels of happiness, patience, acceptance, and compassion, as well as lower levels of stress, frustration, and sadness. There's plenty of research, too: Separate studies conducted by Northeastern University found that 3 weeks of Headspace increased compassion by 23% and reduced aggression by 57%. What's more, another study with students found that 10 days of

Headspace increased positivity and well-being. And yet another — an internal study that was published in top mindfulness journal PLOS ONE — found that 10 days of Headspace reduced stress by 14%.

PRACTICING MINDFULNESS MEDITATION

Practicing mindfulness meditation can be a great way to manage stress and boost compassion, focus, empathy, patience, energy, and ultimately, happiness. If you're just beginning a practice, a guided mindfulness meditation — led by a teacher in person or via the Headspace app — might be a good place to start. Having a trusted, experienced teacher guide you through the basic steps can be key to getting the most out of the experience. Most guided mindfulness meditations follow a similar format: the teacher explains how the mind behaves during meditation, leads you through a particular meditation technique, and suggests how to integrate this technique into your everyday life.

Though there are countless mindfulness techniques — each rooted in a different tradition and with a unique focus — most have one thing in common: they're aimed at cultivating two essential components, **calm** and **clarity**, with the intention to remain focused and hone a natural quality of awareness.

8 MEDITATION TECHNIQUES THAT CULTIVATE MINDFULNESS

Here's a breakdown of eight of the more popular mindfulness techniques — all of which are used in the Headspace app. Some will sound intriguing, while others may not be your cup of tea. See which ones work best for you.

- 1. Focused Attention:** Likely the most common form of meditation, this technique uses the breath to anchor the mind and maintain awareness. Focus your attention on the breath — specifically the rise and fall of the chest — and return to the breath whenever you get distracted or notice your mind starting to wander.
- 2. Body Scan:** This technique, which uses meditation to connect with the body, involves scanning your body from head to toe and being aware of any discomfort, sensations, or aches that exist (which could be indicators of stress and anxiety).
- 3. Noting:** This is a mindfulness technique in which you “note” a particular thought or feeling when you become distracted during meditation. The practice of noting helps to create space and learn more about our habits, tendencies, and conditioning.
- 4. Loving Kindness:** Instead of focusing on the breath, this technique involves focusing on the image of different people: people we know, people we don't; people we like, people we don't. We direct well-wishes and goodwill first to ourselves, and then, as a ripple effect, to others, which helps us let go of unhappy feelings we may be experiencing.
- 5. Skillful Compassion:** Similar to the loving kindness meditation technique, this one involves focusing on a person you know or love and paying attention to the sensations arising from the heart. It's aptly named because it's thought to be helpful in opening our hearts and minds for the benefit of other people, which in turn fosters a feeling of happiness in our own mind.
- 6. Visualization:** This technique uses visualization, to focus on a person or something more abstract, to hold attention. The idea here is that the familiar image will help create and maintain a relaxed focus.
- 7. Resting Awareness:** Rather than focusing on the breath or a visualization, this technique

involves letting the mind rest; thoughts may enter, but instead of distracting you and pulling you away from the present moment, they simply leave.

- 8. Reflection:** For this technique, ask yourself a question, for example, “What are you most grateful for?” (Note that asking yourself a question using the second person – you – will discourage the intellectual mind from trying to answer it rationally.) Be aware of the feelings, not the thoughts, that arise when you focus on the question.

PRACTICING MINDFULNESS POST-MEDITATION

Whichever technique you choose, know that experiencing moments of mindfulness during meditation is a great first step. After meditation, while our minds will likely experience distractions throughout the day, the more our mindfulness practice is honed and developed, the more we are able to catch ourselves being distracted and the more we are able to bring our focus back to the present moment. After all, that’s the whole point of practicing mindfulness meditation – to make us more mindful and less distracted throughout the day. So how do you remember to be mindful when you’re not meditating? At the end of your meditation, try to recognize how your mind feels and then make an intention to carry that feeling into the rest of your day. Some people find it helpful to form a clear idea of what they are going to do next – maybe take a shower or get a cup of coffee – and perform their next task with the same level of awareness they experienced during meditation. It doesn’t matter what you do after meditation, as long as you look for opportunities throughout your day in which to recognize the space and mindfulness you experienced during your practice.

MINDFULNESS FOR BEGINNERS

If you’re looking for a beginner’s guide to mindfulness, Headspace offers a 10-day beginner’s course on the essentials of meditation that will help you develop mindfulness – available for free – which is an ideal way to start building the foundation for a life-changing daily meditation practice. From there, once you gain more experience and confidence, you can explore the whole library of content, featuring hundreds of guided mindfulness meditations on a wide array of topics from stress and compassion, to sleep and focus.

YOGASANA

Tada means palm tree or mountain. This asana teaches one to attain stability and firmness and forms the base for all the standing asana.

TECHNIQUE

Tada means palm tree or mountain. This asana teaches one to attain stability and firmness and forms the base for all the standing asana.

TECHNIQUE



- Stand with feet 2 inches apart.
- Interlock the fingers, and turn the wrist outwards. Now inhale, raise the arms up and bring them in line with the shoulders.
- Raise the heels off the floor and balance on the toes. Stay in this position for 10 -15 seconds.
- Exhale, bring the heels down
- Release the interlock of the fingers and bring the arms down parallel to the trunk, and come back to standing posture.

BENEFITS

- This asana brings stability in the body, helps to clear up congestion of the spinal nerves, corrects faulty posture.
- Helps to increase height up to a certain age.

A WORD OF CAUTION

- Avoid lifting the toes in case of acute cardiac problems, varicose veins and vertigo. Vrksasana (The Tree Posture) Vṛkṣa means tree. The final position of this asana resembles the shape of a tree, hence the name. Techniq



- Stand
- with feet 2 inches apart
- Focus on a point in front.
- Exhale, bend the right leg and place the foot on the inside of the left thigh. The heel should be touching the perineum.
- Inhale and extend the arms up and join the palms.
- Stay in the position for 10 to 30 seconds and breathe normally.
- Exhale and bring the arms and right foot down.
- Relax and repeat the asana by bending the left leg.

BENEFITS

- Improves neuro-muscular coordination, balance, endurance and alertness.
- It tones up the leg muscles and rejuvenates the ligaments also.

A WORD OF CAUTION

- Please avoid this practice in case of arthritis, vertigo and obesity. Pada-Hastasana (The Hands to Feet Posture) Pada means feet, hasta means hands. Therefore, Pada Hastasana means taking the palms down towards the feet. This is also referred as Uttanasana.



Techniq

Stand with feet 2 inches apart

- Inhale slowly and raise the arms up.
- Stretch up the body from the waist.
Exhale and bend forward until the trunk is parallel to the ground
- Exhale, and bend forward until the entire palm rests on the ground.
- Maintain this final posture for 10-30 seconds.
- Those who are having stiff back should bend according to their capacity.
- Now inhale, come up slowly to the vertical position and stretch the arms above the head.
- Exhale and slowly return to the starting position in reverse order.
- Relax in Tadasana.

BENEFITS

- Makes the spine flexible, improves digestions, and prevents constipation and menstrual problems.

A WORD OF CAUTION

- Please avoid this practice in case of cardiac or back problems, abdominal inflammation, hernia and ulcers, high myopia, vertigo and during pregnancy.
- Those with vertebral and disc disorders should also avoid this practice.

Ardha Çakrasana (The Half Wheel Posture)

Ardha means half. Çakra means wheel. In this posture, as the body takes the shape of a half wheel, hence it is called Ardha Çakrasana.

TECHNIQ



- Support the back at the waist with all the fingers together pointing forward or downward.
- Drop the head backwards and stretching the neck muscles. As you inhale, bend backwards from the lumbar region; exhale and relax.

- Stay here for 10-30 seconds with normal breathing.
- Inhale and slowly come up.

BENEFI

- Ardha Çakrasana makes the spine flexible and strengthens thespinal nerves.
- Strengthens the neck muscles, and improves breathingcapacity.
- Helps in cervical spondylitis.

A WORD OF CAUTION

- Avoid this posture in case of vertigo or a tendency to giddiness.
- Hypertensive patients shall bend with care. Trikonasana (The Triangle Posture)
Trikoṇa means triangle. Tri means three and kona is an angle. As the asana resembles three arms triangles made by the trunk and the limbs, it has been named Trikoṇasana.

TECHNIQ



Stand with your feet comfortably apart.
Slowly raise both the arms sideways till they are horizontal

- Exhale, slowly bend to the right side and place the right hand just behind the right foot.
- The left arm is straight up, in line with the right arm.
- Turn the left palm forward.
- Turn your head and gaze at the tip of the left middle finger.
- Remain in the posture for 10-30 seconds with normal breathing.
- As you inhale slowly come up.
- Repeat for the left side.

BENEFITS

- Prevents flat foot.
- Strengthens calf, thigh and waist muscles
- Makes the spine flexible, improves lungs capacity.

A WORD OF CAUTION

- Avoid this posture in case of slipped disc, sciatica, and after undergoing abdominal surgery.
- Do not do beyond limits and overdo the lateral stretch.
- If one cannot touch the feet, one can reach for the knees instead.

SITTING POSTURES

Bhadrasana (The Firm/ Auspicious Posture)

Sthiti: Long sitting posture (**Vişramasan**



TECHNIQ



- Sit erect with the legs stretched out straight in the front.
- Keep the hands beside the hips. This is **Dandasana**.
- Now put the soles of your feet together.
- Exhale and clasp your hands together over your toes. Pull your heels as close as possible up to perineum region.
- If your thighs are not touching or are not close to the floor, place a soft cushion underneath the knees for support. This is the final position.
- Stay here for some time

BENEFITS

- Keeps the body firm and stabilize the mind.
- Keeps the knees and hip joints healthy.
Helps to relieve knee pain
- Acts on the abdominal organs and releases any tension in the abdomen.
- Benefits women by relieving abdominal pain often experienced during menstruation.

A WORD OF CAUTION

- Avoid this practice in case of severe arthritis and sciatica. Vajrāsana (Thunderbolt Posture)
This can be considered as a meditative posture. While practicing it for meditative purposes, one should close his/her eyes at the final stage.

TECHNIQUE

Sit with extended legs together, hands by the side of the body, palm resting on the ground, fingers pointing forward

- Fold the right leg at the knee and place the foot under the right



buttock.

- Similarly folding the left leg, place left foot under the left buttock
- Place both the heels so that the big toes overlap each other.
Position of the buttocks in the space between the heels
- Keep hands on respective knees.
- Keep the spine erect, gaze in front or close the eyes.
- While returning to the original position, bend a little towards right side, take out your left leg and extend it.
- Similarly extend your right leg and return to the original position.

BENEFITS

- This āsana strengthens thigh muscles and calf muscles.
- This āsana is good for digestion.
- It provides firm base to the spine and keeps the spine erect.

A WORD OF CAUTION

- Persons suffering from piles should not practise this āsana.
 - Those who are suffering from knee pain and ankle injury should avoid this practice.
- Ardha Ustrasana (The Half Camel Posture) **Sthiti:** Long sitting posture (Viśramasana) Ustra means camel. The final version of this āsana resembles the hump of a camel. In this version, only the first stage (half) of the āsana is being practiced.
- Techniq



- Sit in Viśramasana.
- Come to Dandasana.
- Fold your legs and sit on your heels.
- Keep the thighs close and big toes touching.
- Place the hands on the knees.
- The head and back should be straight.
- This is Vajrasana
- Stand on your knees.
- Place the hands on the waist with fingers pointing downward.
- Keep the elbows and shoulders parallel
- Bend the head back and stretch the neck muscles; inhale and bend the trunk backwards as much as possible. As you exhale, relax.
- Keep the thighs perpendicular to the ground

- Remain in the posture for 10-30 seconds with normal breathing.
- Return with inhalation; sit in Vajrasana.
- Relax in Viśrāmāsana.

Note: If you can reach the heels, you can place your hands on them and bend backwards. This is called Uṣṭrasana.

BENEFITS

- Relieves constipation and back pain.
- Increases blood circulation to the head and cardiac region.

A WORD OF CAUTION

- In case of hernia and abdominal injuries, arthritis, vertigo and pregnancy, please avoid doing this asana.
Ustrasana (Camel Posture) Ustra means camel. The body in this posture resembles the posture of a camel, hence the name.

TECHNIQ



- Kneel down on the floor. Keep your thighs and feet together, toes pointing back and resting

on the floor.

- Bring the knees and the feet about one foot apart and stand on the knees.
- While inhaling bend backward.
- Be careful not to jerk the neck while bending backward.
- With exhalation place the right palm on right heel and left palm on left heel.
- In final position, thighs will be vertical to the floor and head tilted backward.
- Weight of the body should be evenly supported by the arms and legs.
- This āsana should be practiced after Sarvangasana as a counter pose to enhance the benefits of Sarvangasana.

BENEFITS

- Ustrāsana is extremely useful for defective eyesight.
- This is useful in relieving back pain and neck pain.
- It helps to reduce fat over the abdomen and hips.
- It is helpful in digestive problems.

A WORD OF CAUTION

- Those suffering from high blood pressure, heart disease, hernia should not practice it.

SASANKASANA (THE HARE POSTURE)



- Sit in Vajrasana.
- Spread both the knees wide apart, keep the big toes touching.
- Keep the palms between the knees.
- Exhale and slowly stretch them full length.
- Bend forward and place the chin on the ground.
- Keep the arms parallel.

- Look in front and maintain the posture.
- Inhale and come up.
- Exhale and come back to Vajrasana.
- Stretch your legs back to Visramasan.

BENEFITS

- It helps to reduce stress, anger etc.
- It tones up reproductive organs, relieves constipation, improves digestion and relieves back pain.

A WORD OF CAUTION

- Please avoid this posture in case of acute backache.
- Patients with osteoarthritis of the knees should exercise with caution or avoid Vajrasana.

Uttāna Mandūkāsana (Stretched up-frog posture)

Uttāna means upright and Mandūka means frog. The final position of Uttāna Mandukasana resembles an upright frog, hence the name. In Uttāna Mandūkāsana, the head is held by the elbows.

TECHNIQUE



SIT

in Vajrāsa

- Spread both the knees wide, apart while toes remaining together.
- Raise your right arm, fold it and take it backward from above the right shoulder and place the palm below the left shoulder.
- Now fold left arm similarly and place the palm from the above level at below right shoulder.
- Maintain the position for a while, then coming back slowly to remove the left arm and then the right arm; bring the knees together as in the initial position.

BENEFITS

- This asana is helpful in backache and cervical pain.
- It helps in improving the diaphragmatic movements and helpsto improve lungs capacity.
-

A WORD OF CAUTION

Person with severe knee joint pain should not perform it. Vakrasana (The Spinal Twist Posture)

Sthiti:Dandasana**Techniq**



- Bend the right leg, and place the right foot beside the left knee.
- As you exhale, twist the body to the right.
- Bring the left arm around the right knee and clasp the right bigtoe or place the palm beside right foot.
- Take the right arm back and keep the palm on the ground withthe back straight.
- Remain in the posture for 10-30 seconds with normalbreathing and relax.
- Take out your hands with exhalation and relax
- Repeat the same on the other side.
- Inhale and come up.

BENEFITS

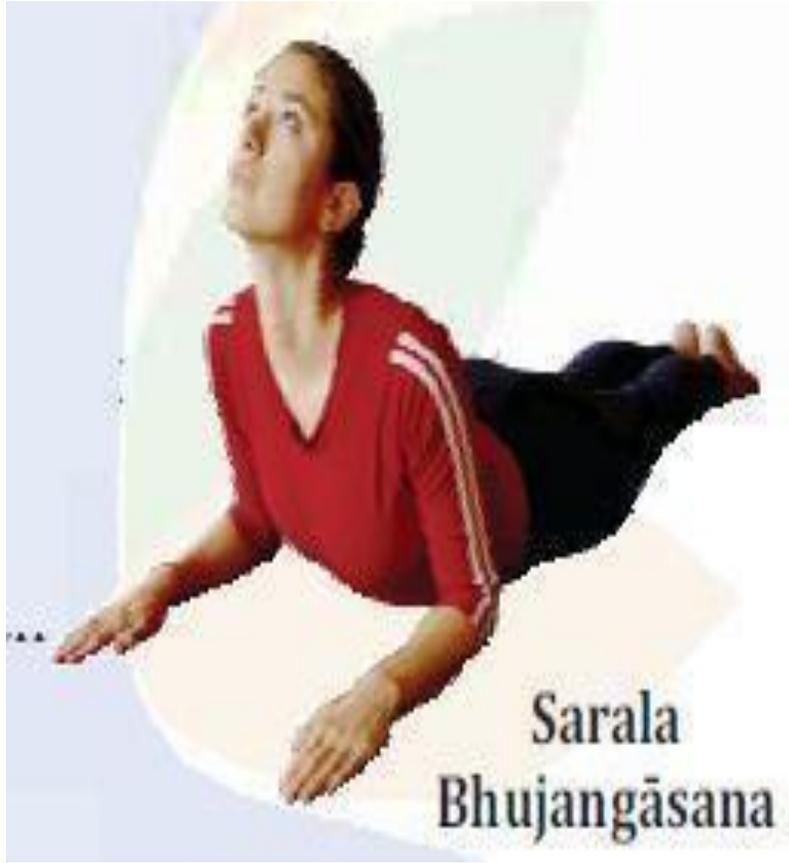
- Increases flexibility of the spine.
Helps to overcome constipation, dyspepsi
- Stimulates pancreas and helps in the management of diabetes.

A WORD OF CAUTION

- Please avoid this posture in case of severe back pain, vertebral and disc disorders, after abdominal surgery and during menstruation.

PRONE POSTURES

Bhujangasana (The Cobra Posture)**Sthiti:**Prone posture or Makarasana**Technique**





Lie down on your stomach, rest your head on your hands and relax the body.

- Now join your legs and stretch your arms
- Keep the forehead on the ground.
- Now place your hands just beside the body; keep palms and elbows on the ground.
- As you inhale slowly, lift the chin and chest come up to navel region.

STAY THERE COMFORTABLE

- This is called **Sarala Bhujangasana**.
 - Now come back and place your forehead on the ground.
 - Keep your palms besides the chest where your elbows were and raise the elbows.
 - Inhale; slowly lift the chin and chest up to navel region.
 - Exhale, rest your forehead on the ground and place your palms and rest your head on the palms and spread your legs and relax.
- Note:** Keep the legs firm so that no load or strain is felt on the lumbar spine.

BENEFITS

- This āsana is best for stress management.
- It reduces abdominal fat and alleviates constipation.

- It also helps to remove backache and bronchial problems.

A WORD OF CAUTION

- Those who have undergone abdominal surgery should avoid this asana for 2-3 months.
 - Those who suffer from hernia, ulcers should not practice this asana.
- Salabhasana(The Locust Posture)**Sthiti:**Prone posture; Makarasana**Techniq**



- Lie down on your stomach in Makarasana.
- Rest the chin on the floor; keep both hands beside the body; palms facing upwards
- Inhale, raise the legs off the floor as much as you can without bending the knees.
- Extend the arms and legs well to ease the lift of the body off the floor.
- Stay in this position for 10-20 seconds breathing normally.
- Exhale, bring the legs down towards the floor.
- Rest for a few seconds in Makarasana.

Note: Pull up the knee caps and squeeze the buttocks to improve the posture. This āsana is more beneficial when performed after Bhujangasana Benefi

- Helps in sciatica and lower backache.
- Tones the hip muscles and those in the kidney region.
- Reduces fat on the thighs and buttocks; good in weight management.
- Helps the abdominal organs aiding digestion

A WORD OF CAUTION

- Cardiac patients should avoid this posture. Please proceed cautiously in case of severe lower back pain.
- People with high blood pressure, peptic ulcers and hernia should also avoid this posture.

MAKARASANA (THE CROCODILE POSTURE)

In Sanskrit, Makara means crocodile. In this āsana, the body resembles a crocodile.

Sthiti: Prone relaxation posture Techniq



Lie down on your stomach with the feet wide apart, feet pointing outward.

- Bend both the arms and place the right hand on the left hand.
- Place the forehead on your hands.
- Keep the eyes closed. This is **Makarasana**.
- This asana is practiced for relaxation in all prone postures.

BENEFITS

Promotes relaxation of the lower bac

- Helps in recovery of back problems.
- Indicated for all orthopedic ailments.
- Indicated to counter stress and anxiety.

A WORD OF CAUTION

- Avoid this practice in case of low blood pressure, severe cardiac problems and pregnancy.

Supine Postures

SETUBANDHASANA (THE BRIDGE POSTURE)

Setubandha means formation of bridge. In this posture, the body is positioned like a bridge, hence the name. This is also called as Çatuşpadasana. **Sthiti:**Supine lying; Savasana. Techniq



- Bend both the legs at the knees and bring the heels near the buttocks.
- Hold both the ankles firmly; keep the knees and feet in one straight line.
- Inhale; slowly raise your buttocks and trunk up as much as you can to form bridge.
- Remain in this position breathing. For 10-30 seconds, with normal
- Exhale, slowly return to Savasana. The original position and relax in

Note: In the final position, the shoulders and head remain in contact with the floor and if required, in the final position, you can support your body at the waist with your hands.

BENEFITS

- Relieves depression and anxiety. Strengthens lower back muscles.
- Stretches abdominal organs, improves digestion and helps to relieve constipation.

A WORD OF CAUTION

- People suffering from ulcers and hernia, and women in advanced stages of pregnancy should not practice this asana.

UTTĀNA PĀDĀSANA (RAISED FEET POSTURE)

Uttāna in this context mean raised-upward and Pāda means leg. In this āsana, the legs are raised upward in supine position, hence, the name. Techniq



- Lie comfortably on the ground with legs stretched out. Hands should be placed by the sides.
- While inhaling, slowly raise both the legs without bending them at the knees and bring them to 90° angle.
- Maintain the position with normal breathing.
- Exhale and slowly bring both the legs down and place them on the ground.
- Repeat it one more time.

BENEFITS

- It balances the navel centre (Nabhimanipuracakra)
- It is helpful in relieving abdominal pain, flatulence, indigestion and diarrhea. It builds up the abdominal muscle
- It is also effective in overcoming the nervousness and anxiety.
- Helps to improve breathing and lungs capacity

A WORD OF CAUTION

- People with hypertension shall practice it with one leg alternatively without holding the breath. Ardha Halāsana (Half plough posture) 'Ardha' means half and 'Hala' means plough. This posture is known as Ardha Halāsana because in its final position, the body resembles half the shape of an Indian plough.

TECHNIQUE



- Take supine position; keep hands by the sides of thighs, palms resting on the ground
- Slowly raise your legs together without bending at knees and stop at 30° angle.
- After few seconds raise your legs further up to 60° angle and maintain the position.
- Now slowly raise the legs at 90° angle. This is the final position of the Ardha Halāsana.
- The body from hip to shoulder should be kept straight.
- Maintain this position as long as comfortable.
- Slowly lower legs at 90° angle and then on the ground without lifting the head.

BENEFITS

- This āsana is beneficial for dyspepsia and constipation
- The practice of this asana is useful in cases of diabetes, piles and throat related disorders.
- This is very beneficial for Hypertensive patients but needs to practice with care.

A WORD OF CAUTION

- Those who have lumbosacral (lower back) pain should not perform with both legs together. Avoid this practice in case of abdominal injuries, hernia etc. Pavanmuktasana (The Wind Releasing Posture)

Pavan means wind and mukta means to release or to make free. As the name suggests, this asana is useful in removing wind or flatulence from the stomach and intestines.

Sthiti: Savasana **Technique**



- Lie down flat on the back.
- Bend both the knees and bring the thighs to the chest.
- Interlock the fingers and clasp the shin below knees.
- Exhale; rise the head till your chin touches the knees and relax.
- This is Pawanmuktasana.
- Bring the head back to the ground.

WHILE EXHALING, LOWER THE LEGS TO THE FLOOR

- Rest in Savasana

Note: Synchronise your breathing with the leg movement and while touching the knee with the nose/ forehead, you should be able to feel the lumbar region stretch; keep the eyes closed and focus your attention on the lumbar region.

BENEFITS

- Removes constipation; gives relief from flatulence, decreases the bloating sensation in the abdomen and aids digestion.
- Helps in recovery of back problems.
- Offers deep internal pressure, massage and stretching of the highly complicated network of muscles, ligaments and tendons in the pelvis and waist region.
- It tones up the back muscles and spinal nerves.

A WORD OF CAUTION

- Please avoid this practice in case of abdominal injuries, hernia, sciatica or severe back pain and during pregnancy.

SAVASANA (THE DEAD BODY POSTURE)

Sava means dead body. The final position in this āsana resembles a dead body.

Sthiti:Supine Relaxation Posture

TECHNIQUE

- Lie down on your back with arms and legs comfortably apart. Palms facing upward; eyes close
- Relax the whole body consciously



- Become aware of natural breath and allow it to become rhythmic and slow.
- Remain in the position till you feel refresh and relax.

BENEFITS

- Helps to relieve all kinds of tensions and gives rest to both body and mind.
- Relaxes the whole psycho-physiological system.

The mind, which is constantly attracted to the outer world, takes a U-turn and moves inwards, thus gradually getting absorbed; as the mind turns quiet and absorbed, the practitioner remains undisturbed by the external environment

- It is found very beneficial in the management of stress and its consequences.

STRESS INOCULATION TRAINING

Stress Inoculation Training (SIT) is a multifaceted type of cognitive- behavioral therapy designed to help individuals cope with stress. It was initially developed by psychologist Donald Meichenbaum in the 1980s and has been employed to mitigate the sequelae of stress in a variety of situations. The essence of SIT is that by exposing people to increasing levels of perceived stress, they

practice employing different coping skills and eventually develop increased tolerance or immunity to a particular stimulus.

1. **Conceptualization** – This phase is designed to achieve two specific goals. First, it builds a relationship between the therapist, coach, or trainer. Second, it educates an individual, increasing their understanding and awareness of his or her stress response and existing coping skills. According to Meichenbaum, is it preferable for this phase to be less didactic and more Socratic in nature. He suggests using “curious questions” to promote an individual’s processing and discovery.

Skills Acquisition and Consolidation – This phase is all about developing and practicing individual psychological tools and cognitive restructuring techniques (breathing techniques, relaxation techniques, negative thought stopping, etc.). The goal is build the coping techniques to they can be applied in the next phase to regulate negative emotions and increase control over physiological responses. They are discovered, nurtured, and strengthened in collaborative manner with a trainer or therapist.

2. **Application and Follow-through** – This phase is, in essence, the phase of inoculation. On a graduated basis, an individual is exposed to increasing levels of a particular stressor and practices applying the skills they have developed to mitigate his or her stress response.

MODIFICATIONS OF STRESS INOCULATION TRAINING: STRESS EXPOSURE TRAINING

It is important to recognize that Meichenbaum’s intention was really to help individuals cope with physical pain, anxiety, anger, and fear as a result of traumatic experiences. This was a clinical intervention designed to treat pathological psychiatric conditions. However, various organizations and individuals saw the potential benefit of instituting this technique prophylactically. Organizations, like the military and NASA, began to adapt the traditional structure of SIT in demonstrated substantial improvements in performance.^{7,8,9,10,11,12}

One adaptation of SIT is Stress Exposure Training (SET). SET, originally proposed by Driskell and Johnston, takes a slightly different approach.¹¹ Its general structure is similar to Meichenbaum’s cognitive behavioral approach. It is divided into three analogous phases:

Information provision – This phase provides information on the human stress response, conditions participants should expect to encounter, and other preparatory information

1. **Skills acquisition** – This phase is designed to develop and refine behavioral, technical, and cognitive skills
2. **Application and practice** – This phase includes practicing skills under conditions that approximate the operational environment and that gradually attain the level of stress expected. SET is different in that, quite simply, it takes a proactive approach. It provides prophylaxis. It prepares individuals without psychiatric pathology for potential stressors and situations that are likely to encounter.

INFORMATION PROVISION

Before we even approached the edge of the water, our instructors told us what to expect. They

said it was normal to be anxious; it was normal to be uncomfortable with your hands and legs tied together. Furthermore, it was a normal physiologic response to experience an elevated heart rate, physical discomfort, and a general unease having to hold our breath. They also explained why it would be important to relax and reduce our bodies' oxygen consumption as much as possible. In the first phase, preparatory information is provided to trainees. They are taught about the physiological response to stress normally and how these natural physiological mechanisms can interfere with the specific cognitive processes and technical skills during resuscitation. It ensures that everyone understands this deterioration in their faculties is normal. Furthermore, it generates accurate predictions of how they will respond. As it turns out, this is critical. Just by having more precise expectations, people perform better under stress. Another important part of this phase is making it clear that providers aren't helpless in the face of this hard-wired response. The belief that people have the capacity to exert control over their behavior is critical. This understanding of self-efficacy has been linked to improved performance in different domains.^{15,16} It also allows you to predict potential areas of weakness and motivate individuals to obtain the necessary skills to improve their response under stress.^{17,18}

PHASE 2 – SKILLS ACQUISITION

We practiced drown-proofing every day for months. Everybody developed tricks and methods to help keep calm, manage their anxiety, and prepare to address various challenges that arose during the exercise. Some people developed a mantra they would repeat to themselves to build confidence. Others sung songs in their heads to calm them down. Still others practiced muscle relaxation techniques whenever possible under water.

The crux of Phase 2 is to develop the host of technical and non-technical skills needed to perform in the resuscitation environment without the addition of stressful stimuli. The goal is to learn and develop constructive coping mechanisms and to develop effective performance habits. The fundamental technical skills of emergency medical care must be established **in conjunction with** various cognitive and behavioral techniques. Precisely what medical skills need to be acquired and how they are to be taught depends on an individual's role and level of experience. I will leave these recommendations to experts in the field of emergency medicine and critical care.

As far as the cognitive and behavioral skills go, I will attempt to outline some key techniques. I would hasten to add that these, too, need to be adapted to different settings. Also, at least in my opinion, they need to be individualized. Some people have an easier time with certain techniques than others. That's fine. Develop a habit of using the various psychological tools that work best for you. It is also worth pointing out that I developed the concepts of Performance Enhancing Psychological Skills (PEPS) and also the components of "Beat The Stress Fool" or BTSF (for more on this check out the post on Enhancing Human Performance in Resuscitation) from the following list of evidence-based techniques:

COGNITIVE CONTROL TECHNIQUES

The foundation of evidenced-based cognitive behavioral therapy in psychiatry is the fact that there is a fundamental connection between what a person thinks, what they feel, and how they act. Cognitive control techniques are designed to provide control over distracting or stress-inducing thoughts. At its core, this is essentially a metacognitive process. The individual is taught to recognize deleterious or distracting thought processes and stopping them. Then negative thoughts are replaced with positive, task-focused thoughts. Say, for example, that a patient presents to you in

respiratory failure. At first glance, just based on preliminary information you immediately think “Oh crap! That looks like a difficult airway. I haven’t had one of these in a while.” You feel your heart rate start to increase and you start to experience feelings of doubt or anxiety. A cognitive control strategy might be to tell yourself... “It might be difficult, but I can take care of this. I have been trained to manage difficult airways and I have managed them before. I know the various steps I can take to optimize oxygenation and maximize chance of first pass success. I have a great team to support me. I can do this.” You could even make it even more specific. It could, perhaps, be made even more task specific by including individual steps. Regarding patient preoxygenation, you could invoke the words of airway master, Dr. Richard Levitan, and say “Sit the patient up, jaw forward, O’s through the nose.” These thoughts or self-suggestions are positive, self-affirming, and task specific. They not only use thoughts to change emotional condition (decrease fear or anxiety),¹⁹ but they also hone attention on the task at hand. Both are important aspects of dealing with stress and improving performance in this situation.^{20,21}

PHYSIOLOGICAL CONTROL TECHNIQUES

These strategies are aimed at controlling specific physiological parameters. Certain physiological responses, such as tachycardia and hyperventilation, magnify the effects of anxiety and contribute to the unfavorable effects of stress on fine motor control, visual acuity, and cognition. Some effective techniques include progressive relaxation or biofeedback.^{22,23} However, these techniques are not always feasible when suddenly presented with a decompensating patient. One method that shows great promise and could easily be applied in resuscitation is controlled breathing. Different techniques of breathing have been used in diverse fields: from yoga, meditation, and martial arts to public speaking and athletics.

Personality, Motivation, emotion, stress and coping MCQ

- 1- Mismatch between personality and organization may lead(s) to
 - (A) Confusion and chaos
 - (B) Loss of interest by members in organization
 - (C) Low morale and job satisfaction
 - (D) All of the aboveAns. D

- 2- A__ person has a cause and an ideology to fight for achieving the set goal.
 - (A) Self-actualized
 - (B) Self-confident
 - (C) Self-driven
 - (D) Self-disciplinedAns. A

- 3- The techniques such as interviews, questionnaires, etc. are used in the__stage related to management of change.
 - (A) Training
 - (B) Diagnosis

- (C) Recruitment
(D) All of the aboveAns. B
- 4- The team whose members collaborate through use of various information technologies is known as team.
- (A) Virtual
(B) Ideal
(C) Real
(D) None of the aboveAns. A
- 5- Which personality theories give recognition to continuity of personalities?
- (A) Humanistic
(B) Integrative
(C) Trait
(D) None of the aboveAns. C
- 6- Major determinants of personality
- (A) Biological
(B) Situation
(C) Both (A) and (B)
(D) None of the aboveAns. C
- 7- Caused by travails of life to meet deadlines
- (A) Hyper work stress
(B) Eustress
(C) Distress
(D) All of the aboveAns. A
- 8- Caused by less than optimum activity
- (A) Distress
(B) Eustress
(C) Hypo stress
(D) None of the aboveAns. C
- 9- Identify the process influence personality development.
- (A) Socialization process
(B) Identification process
(C) Both (A) and (B)
(D) None of the aboveAns. C

- 10- Roger's defines the_ as an organized, consistent, conceptualgestalt composed of perceptions of the characteristics of the 'I' or 'me'.
- (A) The self concept
 - (B) The work concept
 - (C) The team concept
 - (D) None of the aboveAns. A
- 11- Identify the primary level(s) of conflict(s) (A) Intrapersonal
- (B) Interpersonal
 - (C) Intergroup
 - (D) All of the aboveAns. D
- 12- State the reason(s) for individualresistance
- (A) Personal reasons
 - (B) Economic reasons
 - (C) Social reasons
 - (D) All of the aboveAns. D
- 13- Fiedler has described situationalfavorableness in terms of three empirically derived dimensions, viz:-
- (A) The leader member relationship,The degree of task structure, The leader's positional power
 - (B) The leader member relationship, The degree of organization structure, The leader's positional power
 - (C) The leader member relationship,The degree of task structure, The leader's positional level
 - (D) The leader member relationship, The degree of organization structure,The leader's positional level Ans. A
- 14- Identify the main reason(s) forresistance to change, as advocatedby Keith Davis
- (A) Obsolescence of skills
 - (B) Fear of unknown
 - (C) Preference for status quo
 - (D) All of the aboveAns. D
- 15- _is the science of humanbehavior.
- (A) Psychology
 - (B) Philosophy
 - (C) Sociology
 - (D) None of the aboveAns. A
- 16- Identify the key principle(s) for integrative (win-win) negotiations (A), Invent options for mutual

gains

- (B) Focus on interests and not positions
 - (C) Insist on using objective criteria
 - (D) All of the above
- Ans. D

17- _____ is caused because of the modern life and anxiety to cope with them.

- (A) Depression
 - (B) Distress
 - (C) Eustress
 - (D) None of the above
- Ans. B

18- A person of lower than normal intelligence is less bored by _____ work.

- (A) Repetitive
 - (B) Continuous
 - (C) Daily
 - (D) All of the above
- Ans. A

19- What is the other name for vertical job loading?

- (A) Job satisfaction
 - (B) Job enlargement
 - (C) Job enrichment
 - (D) None of the above
- Ans. C

20- John and Peter are members of the Six-sigma team. What factor(s) may give rise to conflict between these two qualified members?

- (A) John and Peter have incompatible needs
 - (B) Limited availability of resources
 - (C) Perception relating to the concerned issue
 - (D) All of the above
- Ans. D

21- The conflict management style which refers to cooperative but unassertive behavior is known as _____.

- (A) Accommodating style
 - (B) Working style
 - (C) Cooperative style
 - (D) None of the above
- Ans. A

22- According to Freud the human mind is composed of

- (A) Preconscious mind
- (B) Conscious mind

- (C) Unconscious mind
- (D) All of the aboveAns. D

- 23- Behavioral scientists are focusing their attention on
- (A) Relationship of organizational structure to human behavior
 - (B) Organizational adaptability
 - (C) Decision making
 - (D) All of the aboveAns. D

- 24- The process by which a third party helps two or more other parties to resolve their conflicts is known as_.
- (A) Mediation
 - (B) Cooperation
 - (C) Mutation
 - (D) None of the aboveAns. A

- 25- Ego controls
- (A) The gateway of actions
 - (B) Select the feature of environment
 - (C) Decides what instincts will be satisfied
 - (D) All of the aboveAns. D

- 26- The relationship in which one person influences others to work together willingly on related tasks is known as_.
- (A) Delegation
 - (B) Leadership
 - (C) Management
 - (D) None of the aboveAns. B

- 27- Desire to be accepted by others
- (A) Affiliation motive
 - (B) Achievement motive
 - (C) Primary motive
 - (D) Power motiveAns. A

- 28- Desire to be successful
- (A) Achievement motive
 - (B) Affiliation motive
 - (C) Primary motive
 - (D) Power motiveAns. A

- 29-** Avoidance of pain
(A) Achievement motive
(B) Affiliation motive
(C) Primary motive
(D) Power motive
Ans. C
- 30-** Desire to control others
(A) Achievement motive
(B) Affiliation motive
(C) Power motive
(D) Primary motive
Ans. C
- 31-** Good match between individual personality and organization is essential because of
(A) Some people have passion for bureaucracy
(B) Some people prefer autonomy flexibility in operation
(C) Both (A) and (B)
(D) None of the above
Ans. C
- 32-** Ego reduces tension by performing task of
(A) Perceiving outside world
(B) Remembering experience with outside world
(C) Acting to satisfy the instinctual wishes
(D) All of the above
Ans. D
- 33-** Following is the specific characteristic(s) of high achiever
(A) Moderate risk taker
(B) Satisfied with his accomplishment
(C) Need for immediate feedback
(D) All of the above
Ans. D
- 34-** Organizational socialization includes
(A) Developing competencies
(B) Developing organizational values
(C) Developing social and working relationship
(D) All of the above
Ans. D
- 35-** According to Vroom's theory,
_is the result of multiplication of valence and expectancy.
(A) Motivation
(B) Management

- (C) Delegation
- (D) OrganizationAns. A

36- Which type of motivator(s) is (are) involved in granting additional authority to an employee in his activity?

- (A) Responsibility
- (B) Recognition
- (C) Both (A) and (B)
- (D) None of the aboveAns. C

37- An individual can cope with stress through_.

- (A) Regular exercise
- (B) The self concept
- (C) Self control
- (D) Self motivationAns. A

38- In order to understand the Rogers' theory one needs to understand which of the following?

- (A) The self concept
- (B) The organism
- (C) The development of self
- (D) All of the aboveAns. D

39- _is an event which leads to creation of a life stressor.

- (A) Festival
- (B) Marriage
- (C) Conference
- (D) WorkshopAns. B

40- Personality is affected by which of the following factor(s)?

- (A) Heredity
- (B) Culture
- (C) Family
- (D) All of the aboveAns. D

41- Trait theories

- (A) Allport, Cattell and Sheldon
- (B) Likert's scale
- (C) Sigmund Freud
- (D) Carl RogersAns. A

- 42-** Summed rating measure
(A) Allport, Cattell and Sheldon
(B) Likert's scale
(C) Sigmund Freud
(D) Carl Rogers
Ans. B
- 43-** Self theory
(A) Allport, Cattell and Sheldon
(B) Likert's scale
(C) Sigmund Freud
(D) Carl Rogers
Ans. D
- 44-** Intrapsychic theory
(A) Allport, Cattell and Sheldon
(B) Likert's scale
(C) Sigmund Freud
(D) Carl Rogers
Ans. C
- 45-** Manager's role changed from that of a leader to that of partner in a type of organization.
(A) Collegial
(B) Autocratic
(C) Custodial
(D) Supportive
Ans. A
- 46-** Identify the situation(s) which reflect upward communication
(A) Suggestion boxes kept in the worker's canteen
(B) Performance reports of workers
(C) Employee attitude surveys
(D) All of the above
Ans. D
- 47-** The blue print of human behavior at work is represented by
(A) Procedures, Rules, Regulations
(B) Procedures, Rules, Coordination
(C) Procedures, Motivation, Regulations
(D) Procedures, Motivation, Coordination
Ans. A
- 48-** Select the factor(s) which is (are) helpful in understanding perceptual organization.
(A) Perceptual grouping
(B) Perceptual constancy
(C) Closure principle

(D) All of the aboveAns. D

49- Two factor theory of motivation

(A) Harold Kelley

(B) Douglas McGregor

(C) Herzberg

(D) J. Stacy AdamsAns. C

50- Commonalities and differences suggest in certain respects, every person is like

(A) All other people

(B) Some other people

(C) No other person

(D) All of the aboveAns. D

51. Some behavior patterns appear only after a specific developmental stage or time. This stage or time is called:

(a) Imprinting

(b) maturation

(c) Learning

(d) InstinctAns. B

52. The inherited behavior is called instincts:

(a) Imprinting

(b) Learning

(c) maturation

(d) InstinctAns. D

53. The change of behavior by life experiences is called:

(a) Instinct

(b) maturation

(c) Learning

(d) ImprintingAns. C

54. The decrease in response to repeated or continuous stimulation is called:

(a) Instinct

(b) maturation

(c) habituation

(d) Imprinting Ans. C

55. The uses cognitive or mental processes to associate experiences and solve problems are

called:

- (a) Instinct
- (b) maturation
- (c) habituation
- (d) insight Ans. D

56. The behavior in which one animal is aggressive or attacks another animal, the other responds by returning the aggression or submitting is called:

- (a) agnostic
- (b) Territory
- (c) Hierarchy
- (d) Altruism Ans. A

57. The organization of group of animals in such a way that some members of the group have greater access to resources like food or mates than others is called:

- (a) agnostic
- (b) Territory
- (c) Hierarchy
- (d) Altruism Ans. C

58. The site defended by territorial animal by agonistic behavior is:

- (a) Hierarchy
- (b) Altruism
- (c) agnostic
- (d) Territory Ans. D

59. The interaction in which an individual gives up or sacrifices some of its own reproductive potential to benefit another individual is called:

- (a) agnostic
- (b) Territory
- (c) Hierarchy
- (d) Altruism Ans: D

60. Each of our _____ consists of tightly coiled DNA.

- (a) chromosomes
- (b) cell proteins
- (c) nucleotides
- (d) amino acids Ans. A

61. Genes regulate protein synthesis by

- (a)** coding for the arrangement of ribosomes on DNA molecules.
- (b)** specifying which amino acids will be joined together, and in what order.
- (c)** regulating the influx of ions like sodium and potassium, which code for proteins.
- (d)** setting the cell's biological clock and controlling how and when a cell divides.

Ans. B

62. The fusion of your father's sperm and your mother's egg is referred to as

- (a)** gene expression.
- (b)** spermatization.
- (c)** fertilization.
- (d)** epigenetics.

Ans. C

63. Even though your body changes and you develop new physical and behavioral characteristics, your DNA never changes.

- (a)** archetype
- (b)** phenotype
- (c)** appearance
- (d)** genotype

Ans. D

64. How do gene mutations contribute to evolution?

- (a)** Beneficial mutations are passed on to several members of a generation, quickly taking hold in a population.
- (b)** Unfavorable mutations have a more significant effect on genes than do favorable mutations, so they are spread through the population.
- (c)** Natural selection favors beneficial mutations, so they survive and are passed on to future generations.
- (d)** Beneficial and unfavorable mutations take hold in the population equally over numerous generations.

Ans. C

65. The process by which a cell directs a gene to make a certain protein is called

- (a)** gene expression.
- (b)** DNA extraction.
- (c)** chromosome assembly.
- (d)** genetic modification.

Ans. A

66. Epigenetics is most concerned with
- (a) changes in a person's genotype resulting from environmental influences.
 - (b) the expression of a particular gene as influenced by external inputs.
 - (c) environmental influences on gene expression over experiential influences.
 - (d) the heritability of genotypes that have been altered over multiple generations. Ans. B
67. In the experiment with dull and bright rats, Cooper and Zubek demonstrated a gene–environment interaction by showing that when navigating the maze
- (a) dull rats raised in all environments always made more errors.
 - (b) bright rats raised in enriched environments sometimes made more errors.
 - (c) dull rats raised in enriched environments eventually performed as well as bright rats.
 - (d) dull rats raised in impoverished environments performed poorly. Ans. C
68. Why are dominant, yet harmful, alleles like the *huntingtin* gene so rare in our genomes?
- (a) Only a few harmful alleles affect the nervous system.
 - (b) The carrier does not survive long enough to pass on the allele.
 - (c) The alleles for disorders are not active until adulthood.
 - (d) The allele can be transmitted only to another dominant carrier. Ans. B
69. Before the mechanisms behind PKU were known to science, infants that inherited the genes for the disorder almost always
- (a) maintained a low bodyweight.
 - (b) developed mental impairments.
 - (c) grew to pass on the genes to offspring.
 - (d) died before the age of ten. Ans. B
70. The effects of PKU are epigenetic because
- (a) having two genes for PKU doubles the chances that phenylalanine will impact a child's brain development.
 - (b) a child inherits two genes for PKU only when environmental conditions are favorable.
 - (c) phenylalanine causes mental deficits even if a child inherits just one gene for PKU.
 - (d) PKU is harmful only if a child ingests significant amounts of phenylalanine. Ans. D
71. Which single gene effect do men display more often than women?
- (a) The inability to distinguish red from green
 - (b) The inability to distinguish different pitches
 - (c) A gradual decline in the ability to focus on distant objects

- (d) A gradual decline in the ability to hear. Ans. A
72. One reason dysfunctional alleles can have such specific effects on the workings of our sensory systems is that
- (a) only one allele has a significant effect on each system.
 - (b) the toxicity of dysfunctional alleles degrades the action of the entire brain.
 - (c) our sensory systems rely on the functioning of more than one protein.
 - (d) only a single allele needs to be dysfunctional to result in a deficit. Ans. C
73. Which statement best describes a valid gene– environment interaction on behavior?
- (a) Identical twins adopted by different families often display behaviors typical of their adoptive families.
 - (b) In rats, littermates reared by mothers of different strains display the same exploratory behavior as their biological siblings.
 - (c) Two people with the same phenotype may not share the same genotype.
 - (d) Shrews raised in a lab without their mother fail to nurture their young. Ans. A
74. Which confounding variable is teased out when psychologists study the traits of identical twins?
- (a) Similar environments shared by relatives
 - (b) Shared zygotes of monozygotic twins
 - (c) The influence of dysfunctional alleles
 - (d) The genetic influence of the *huntingtin* gene. Ans. A
75. Dizygotic twins
- (a) have identical DNA.
 - (b) appear to be identical.
 - (c) rarely resemble each other.
 - (d) grow from separate zygotes. Ans. D
76. Twins who do *not* share 100 percent of their genes are called
- (a) dizygotic.
 - (b) monozygotic.
 - (c) identical.
 - (d) discordant. Ans. A

77. Twins who share a certain physical or behavioral trait are *_____* for that trait.
- (a) discordant
 - (b) monozygotic
 - (c) dizygotic
 - (d) concordant
- Ans. D
78. Heritability estimates tell us
- (a) the degree to which variations in a population can be attributed to genetics.
 - (b) the rate at which people in a given population develop a particular disorder.
 - (c) the percentage of people who can pass on a specific gene to a child.
 - (d) the chance that any one person will carry a particular gene.
- Ans. A
79. What is the key difference between twin studies and adoption studies?
- (a) Twin studies involve identical twins, while adoption studies involve fraternal twins.
 - (b) In twin studies, the effects of the environment are not taken into consideration.
 - (c) In adoption studies, twins are separated at birth, adopted, and raised apart.
 - (d) Adoption studies involve non-twin biological siblings raised by different families.
- Ans. C
80. Twin studies of the heritability of schizophrenia generally show that
- (a) there is a 50 percent difference in the genomes between those with schizophrenia and those without it.
 - (b) 90 percent of twins who inherit genes for schizophrenia will develop symptoms.
 - (c) monozygotic twins tend not to inherit genes for schizophrenia.
 - (d) the heritability of schizophrenia is about 50 percent.
- Ans. D
81. Schizophrenia most often presents itself at what stage?
- (a) Early childhood, when parental influences are most significant
 - (b) Late childhood, when genetics and family environment have the greatest impact
 - (c) Early adulthood, when people begin to face the world on their own
 - (d) Late adulthood, when brain and body cells are more susceptible to breaking down
- Ans. C
82. In cases where only one of two identical twins develops schizophrenia, all of the following factors may be responsible *except*
- (a) birth weight.
 - (b) birth order.
 - (c) nutrition.

(d) nurturing. Ans. B

83. Which situation is most consistent with the results of twin studies of schizophrenia?

(a) When both twins carry the gene for schizophrenia, only one will develop symptoms.

(b) Schizophrenia is more likely to materialize in a twin who experiences extreme stress.

(c) Twins who inherit the gene for schizophrenia very rarely present symptoms of the disorder.

(d) Having a father with schizophrenia greatly increases the chance that male twins will develop the disorder. Ans. B

84. What do studies of maternal nurturing behavior in rats suggest about humans?

(a) Maternal nurturing causes children to release corticosterone, which reduces levels of stress and leads to more nurturing.

(b) People who are adequately nurtured early in life tend to be less nurturing when they have children of their own.

(c) Children with nurturing mothers develop fewer natural defenses to stress and are more likely to become suicidal.

(d) Maternal neglect early in life may have lasting impacts on a person's ability to cope with life's challenges. Ans. D

85. All the following are defense mechanisms of the ego, except:

A. Projection

B. Conversion

C. Reaction formation

D. Transference Ans. D

86. Operant condition with paradigm pain stimulus given to a child for behaviour therapy is:

A. Positive reinforcement

B. Negative reinforcement

C. Punishment

D. Negotiation Ans. C

87. Psychoanalysis was discovered by:

A. Alder

B. Bleuler

C. Morton

D. Sigmund Freud Ans. D

88. Appropriate management of phobias includes:

A. Systematic desensitization

B. Chlorpromazine

- C. Bio feed base
D. ECTAns. A
89. Mature defense mechanism is:
A. Denial
B. Anticipation
C. Projection
D. Reaction Other mature defenses are:Sublimation, suppression,humor, altruism, ascetism. Ans. B
90. Mature defense mechanism is seen in:
A. Regression
B. Altruism
C. Repression
D. None Other mature defenses:Ascetism AnticipationSublimationSuppressionHumor Ans. B
91. That part of the mind which is working on reality principle is:
A. Id
B. Ego
C. Super ego
D. Ego-idealAns. B
92. One of the important defense mechanism is:
A. Anticipation
B. Confabulation
C. Repression
D. SuppressionAns. C
93. Which of the following excludes painful stimuli from awareness?
A. Repression
B. Projection
C. Rationalism
D. Reaction formationAns. A
94. According to Sartre, existentialism is a doctrine intended strictly for:
(a) all people.
(b) specialists and philosophers.
(c) Europeans.

(d) atheists. Ans. B

95. What all existentialists have in common, according to Sartre, is the view that:

(a) God does not exist, and so everything is permitted.

(b) all humans share a common nature.

(c) existence precedes essence.

(d) essence precedes existence. Ans. C

96. In Sartre's view, when one chooses how to live one is choosing:

(a) only for oneself.

(b) for all of one's family.

(c) for all of one's friends.

(d) for all people. Ans. D

97. Sartre claims that when he speaks of *forlornness*, he means that:

(a) God does not exist and we must face all the consequences of this.

(b) we can never truly know another human being.

(c) we are not responsible for our passions.

(d) all of the above. Ans. A

98. According to Sartre, the existentialist finds the fact that God does not exist:

(a) liberating.

(b) clarifying.

(c) very distressing.

(d) unimportant. Ans. C

99. In Sartre's view, humans are responsible for:

(a) their actions.

(b) their passions.

(c) both a and b.

(d) neither a nor b. Ans. C

100. Sartre claims that the value of one's affection is determined by:

(a) the way one acts.

(b) the way one feels.

- (c) the way one thinks.
- (d) all of the above. Ans. A

101. Sartre claims that according to existentialism, there is no reality except in:

- (a) passion.
- (b) action.
- (c) contemplation.
- (d) appetite. Ans. B

102. Who defined "group mind" as under: "It (Group mind) consists of the same stuff as individual minds, its threads and parts lie within these minds but the parts in the several individual minds reciprocally imply and complement one another and make up the system which consists wholly of them",

- (a) Mc Dougall
- (b) J. B. Watson
- (c) J. S. Mill
- (d) William James. Ans. A

103. For Mc Dougall, the seat of conscious mental activity is:

- (a) Mind
- (b) Soul
- (c) Synapse
- (d) Libido. Ans. C

104. Who has rightly revealed that Behaviourism has reduced the person "to a large white rat or a slower computer"?

- (a) J. B. Watson
- (b) R. S. Woodworth
- (c) Bugental
- (d) Maslow. Ans. C

105. Who has rightly commented, "The study of 1 crippled, stunted, immature and unhealthy specimens can yield only a cripple psychology and cripple philosophy"?

- (a) Abraham Maslow
- (b) Carl Rogers
- (c) J. B. Watson
- (d) R. S. Woodworth. Ans. A

106. Who was considered as "Spiritual father of humanism in America"?

- (a) J.B. Watson

- (b)** Carl Rogers
- (c)** R. S. Woodworth
- (d)** Abraham Maslow 1Ans. D

107. Who assumed that every person has an inherent tendency to actualize his unique potential?

- (a)** Abraham Maslow
- (b)** Carl Rogers
- (c)** R. S. Woodworth 1
- (d)** J.B. WatsonAns. B

108. Abraham Maslow assumed a holistic approach to:

- (a)** Perception
- (b)** Motivation
- (c)** Learning
- (d)** IntelligenceAns. B

109. Maslow's self-actualization theory has been best explained in terms of:

- (a)** Perceptual Processes
- (b)** Intellectual Processes
- (c)** Creativity
- (d)** Motivational ProcessesAns. D

110. Alfred Adler's striving for superiority and Erik Erikson's need for mastery are similar to Maslow's concept of:

- (a)** Belongingness Need
- (b)** Esteem Needs
- (c)** Need for self-actualization
- (d)** Safety NeedsAns. B

111. Self-actualization refers to the desire for:

- (a)** Self-fulfillment
- (b)** Security
- (c)** Sex satisfaction
- (d)** Love and belongingnessAns. A

112. In framing the concept of "Self-actualization", Maslow (1970) has acknowledged his debt to:

- (a)** Kurt Lewin
- (b)** Kurt Goldstein
- (c)** Carl Rogers
- (d)** R. S. WoodworthAns. B

113. Need for self-actualization is an umbrella need that covers:

- (a)** 10 metaneeds or being values
 - (b)** 100 metaneeds or being values
 - (c)** 20 metaneeds or being values
 - (d)** 17 metaneeds or being values
- Ans. D

114. Abraham Maslow is well-known for his concept of:

- (a)** Hierarchical model of motivation
 - (b)** Topographical Psychology
 - (c)** Field Theory
 - (d)** Life Space
- Ans. A

115. Self-actualization need lies at the top of the hierarchy where only:

- (a)** 50% people reach
 - (b)** 10% people reach
 - (c)** 80% people reach
 - (d)** 100% people reach
- Ans. B

116. The existential Psychology is highly related to Humanistic Psychology. These two systems together constituted the:

- (a)** Third force in psychology
 - (b)** Fourth force in psychology
 - (c)** First force in psychology
 - (d)** Second force in psychology
- Ans. A

117. Existential Psychology deals with person as such who exists as:

- (a)** A being-in-the-world
 - (b)** An animal
 - (c)** A psychophysical entity
 - (d)** An environmental product
- Ans. A

118. The basic aim of existential psychology is to understand a person in his:

- (a)** Motivational cycle
 - (b)** Situational world
 - (c)** Environmental cycle
 - (d)** Existential reality
- Ans. D

119. Soren Kierkegard was a/an:

- (a)** American Philosopher

- (b)** Danish Philosopher
- (c)** English Philosopher
- (d)** Swiss PhilosopherAns. B

120. When a person meaningfully communicates with others, he is said to have:

- (a)** Existed
- (b)** Communicated
- (c)** Restricted
- (d)** PreferredAns. A

121. The very term “existential neurosis” was first explained by:

- (a)** Rollo may (1909)
- (b)** Maddi (1967)
- (c)** Martin Heidegger (1899)
- (d)** Karl Jaspers (1960)Ans. B

122. For cognitive psychologists, psychology is the study of:

- (a)** Experience
- (b)** Mind and Soul
- (c)** Behaviour
- (d)** Higher and mental processesAns. D

123. When the child is about two years old, he develops the ability to respond to even those objects that are not observable. This is called:

- (a)** Egocentrism
- (b)** Object permanence
- (c)** Semiotic function
- (d)** AnimismAns. B

124. In pre-operational stage, the “intuitive period” is also known as:

- (a)** Sensori-motor Period
- (b)** Perceptual Period
- (c)** Concrete Operational Period
- (d)** Formal Operational PeriodAns. B

125. “Childhood shows the man as morning ‘ hows the day”. – This quotation reveals the importance of:

- (a)** Early childhood influence on the development of personality
- (b)** The influence of environment on personality
- (c)** Childhood of important personalities

(d) Importance of childhood in our lives Ans. A

126. The holistic approach considers man as:

- (a)** Religious
- (b)** A unified organism
- (c)** A dualistic being
- (d)** An emotional being Ans. B

127. According to Jean Piaget, egocentrism is a major hindrance to:

- (a)** Memory
- (b)** Cognitive Development
- (c)** Learning
- (d)** Creativity Ans. B

128. In the development of language and thinking, the child tends to display:

- (a)** Egocentric attitudes and centration
- (b)** Abnormal behaviour
- (c)** Assimilation and accommodation
- (d)** Seriation and accommodation Ans. A

129. According to Piaget, during age 4 to 7, there is decrease of gross absurdity in thinking and reasoning. The child has now some ideas of classes or concepts. So he groups objects by:

- (a)** Proximity
- (b)** Similarity
- (c)** Proximity
- (d)** Closure Ans. B

130. The ability of the child to maintain equivalence in spite of change in the perceptual field is called:

- (a)** Reversibility
- (b)** Assimilation
- (c)** Seriation
- (d)** Centration Ans. A

131. For children, Piaget observed two types of speech which are very often used. These are:

- (a)** Egocentric and Socialized speech
- (b)** Haphazard and Distorted speech
- (c)** Symbolic and socialized speech
- (d)** Communicative and Distorted speech Ans. A

132. Jean Piaget stressed the educational significance of learning in a/an:

- (a)** Social context

- (b) Physical context
 - (c) Environmental context
 - (d) Psychophysical context
- Ans. A

133. When a child gives evidence of being fluent, flexible, original and elaborative, he is said to be:

- (a) Intelligent
 - (b) Creative
 - (c) Gifted
 - (d) Dull
- Ans. B

134. For the first time, who has introduced the technique of "BrainStorming"?

- (a) J. B. Watson
 - (b) Osborn
 - (c) Jean Piaget
 - (d) R. S. Woodworth
- Ans. B

135. Noam Chomsky's major contribution to cognitive psychology was his theory of:

- (a) Language
 - (b) Grammar
 - (c) Concept
 - (d) Equivalence Formation
- Ans. B

136. Chomsky has developed a psycholinguistic theory of language development having a/an:

- (a) Biological base
 - (b) Psychological base
 - (c) Psychophysical base
 - (d) Physiological base
- Ans. A

137. Chomsky has assumed some innate neurological mechanisms which facilitate child's acquisition of syntax. These mechanisms are called:

- (a) Language Acquisition Device (LAD)
 - (b) Surface Structure
 - (c) Transformational Rules
 - (d) Deep Structure
- Ans. A

138. Who viewed that the major problem in understanding a language is to derive deep structure from the surface structure of the sentences?

- (a) Noam Chomsky
- (b) B. F. Skinner

- (c) E. C. Tolman
- (d) J. B. WatsonAns. A

139. The “meaning” of the sentence is determined by:

- (a) Deep structure
- (b) Surface structure
- (c) Language acquisition Device
- (d) Productive aspect of LanguageAns. A

140. An attempt to explain something unknown in terms of already known principles is known as:

- (a) Model
- (b) Concept
- (c) Theory
- (d) HypothesisAns. A

141. Information-processing model attempts to explain cognition in terms of the principles of operation of:

- (a) Machines
- (b) Computers
- (c) Galvanometers
- (d) BarometersAns. B

142. The “Information Processing Model” has given birth to the concept of:

- (a) Artificial Intelligence
- (b) Abstract Intelligence
- (c) General Intelligence
- (d) Situational IntelligenceAns. A

143. Intellectual capacities of computers are called:

- (a) General Intelligence
- (b) Artificial Intelligence
- (c) Specific Intelligence
- (d) Abstract IntelligenceAns. B

144. Information Processing Model have given birth to the concept of “artificial intelligence” which is very important to study:

- (a) Memory
- (b) Intelligence
- (c) Learning
- (d) Problem solving BehaviourAns. D

145. Bandura has placed importance on:

- (a)** Instrumental Learning
- (b)** Insightful Learning
- (c)** Classical conditioning
- (d)** Modelling or Observational Learning Ans. D

146. Modern Psychology has been unduly influenced by:

- (a)** Information Processing Model
- (b)** Structuralism
- (c)** Functionalism
- (d)** Gestalt Psychology Ans. A

147. In ancient psychology of India, transformation and modification of mind are done through:

- (a)** Dharma
- (b)** Abhidharma
- (c)** Karma
- (d)** Yoga Ans. D

148. The First Indian Psychological laboratory was established in the University of:

- (a)** Madras in 1928
- (b)** Calcutta in 1915
- (c)** Utkal in 1958
- (d)** Patna in 1960 Ans. B

149. Who has established the "Psychoanalytic Society" in India in the year 1922?

- (a)** Prof. Girindra Sekhar Bose
- (b)** Prof. G. C. Mishra
- (c)** Dr. R. N. Rath
- (d)** Prof. Maithili Jha Ans. A

150. Indian Psychological Association was formed in the year:

- (a)** 1920
- (b)** 1930
- (c)** 1925
- (d)** 1950 Ans. C

151. The famous book "Origin of Species" deals with the theory of:

- (a)** Creativity
- (b)** Evolution

- (c) Intelligence
- (d) LibidoAns. B

152. Folk Psychology deals with:

- (a) Folk literature
- (b) Folk art
- (c) Folk behaviour
- (d) Folk mythologyAns. C

153. When and where did the first International Congress of Psychology meet?

- (a) In Vienna in 1897
- (b) In Paris in 11889
- (c) In New Delhi in 1909
- (d) In Kathmandu in 1990Ans. B

154. A system is based upon determinism, empiricism, reductionism and environmentalism. Name the system.

- (a) Gestalt Psychology
- (b) Behaviourism
- (c) Psychoanalysis
- (d) StructuralismAns. B

155. Behaviourism regards personality as the totality of:

- (a) Environmental products
- (b) Behavioural patterns
- (c) Cultural products
- (d) S-R connectionsAns. A

156. Who has perceived human behaviour as a result of the motion of a fluid from the sense organs to the brain along the nerves and back from the brain to nerve endings in the muscles?

- (a) Descartes
- (b) Wilhelm Wundt
- (c) J. S. Mill
- (d) J.B. WatsonAns. A

157. According to B.F. Skinner, the simple unit of behaviour is:

- (a) Neuron
- (b) Reflex
- (c) Nervous System
- (d) NervesAns. B

- 158.** Who viewed that whenever behaviour is correlated to specific eliciting stimuli, it is “respondent behaviour” and whenever no such stimuli are present it is called “operant behaviour”?
- (a) J. B. Watson
 - (b) B. F. Skinner
 - (c) Clark H. Hull
 - (d) E. C. Tolman
- Ans. B
- 159.** Kurt Goldstein’s psychological theory is based on the principles of constancy or equalization of:
- (a) Sources
 - (b) Energy
 - (c) Intelligence
 - (d) Response
- Ans. B
- 160.** The idea of pleasure and unpleasure are related to the mental economy of excitation. This concept was borrowed by Sigmund Freud from:
- (a) Weber
 - (b) Fechner
 - (c) Watson
 - (d) Pavlov
- Ans. B
- 161.** In 1895, Breuer and Freud have published a volume entitled “Studies in Hysteria”. These studies reported successful treatment of hysterical symptoms by a method called:
- (a) Observation
 - (b) Introspection
 - (c) Hypnotism
 - (d) Catharsis
- Ans. D
- 162.** The law of proximity in perception becomes a law of “temporal contiguity” in the:
- (a) Personality Theory
 - (b) Learning Theory
 - (c) Theory of Creativity
 - (d) Theory of Intelligence
- Ans. B
- 163.** In the “Oral Biting Period” of Psychosexual Development, the libido is fixated on the:
- (a) Physical Self
 - (b) Genital Organs
 - (c) Hands
 - (d) Heads
- Ans. A

- 164.** Who held that human beings only go through an oedipal phase probably due to two reasons – (i) Because of the close knit character of human family formation and the utter helplessness of children during their first few years and (ii) the ability of helpless little boys and girls to build fantasies and daydreams about sexuality including ideas about parental intercourse, to entertain fantastic hopes of possessing a loved parent and in most cases to recognise the anatomical roof of sex differences even though they may misinterpret its source?
- (a) Benedeck (1959)
 - (b) Cameron (1969)
 - (c) Rangell (1955)
 - (d) Otto rank (1929) Ans. B
- 165.** According to Rangell (1955), the preoedipal child enters his oedipal phase with only infantile precursors of a/an:
- (a) Super Ego
 - (b) Ego
 - (c) Id
 - (d) Unconscious Ans. A
- 166.** “It seems probable that the “Oedipal Phase” is biologically predetermined or atleast that given such a close knit unit as the human family in the Western Culture, it is biologically inevitable.” Who has given the above statement?
- (a) C.G. Jung (1919)
 - (b) Benedeck (1959)
 - (c) Cameron (1969)
 - (d) Rangell (1955) Ans. B
- 167.** The tendency of men to marry women resembling their mother and the tendency of girls to marry men resembling their father indicates the shadow of:
- (a) Electra Complex
 - (b) Oedipus Complex
 - (c) Narcissism
 - (d) Libido Ans. B
- 168.** Constipation is a common defence reaction against:
- (a) Elimination
 - (b) Fixation
 - (c) Repression
 - (d) Regression Ans. A
- 169.** Excessive fixation in the “analstage” may lead people to develop the tendency to be:

- (a) Doctors
- (b) Teachers
- (c) Military men
- (d) Industrialists Ans. B

170. A sexual attachment towards one of the parents (of the oppositesex) with a concomitant jealousy towards the other parents is popularly known as:

- (a) Fixation
- (b) Narcissism
- (c) Oedipus Complex
- (d) Libido Ans. C

171. Who has emphatically remarked in his theory, "Super ego is the heir to Oedipus Complex"?

- (a) Sigmund Freud
- (b) C. G. Jung
- (c) Alfred Adler
- (d) Otto Rank Ans. A

172. The therapy formulated by Maslow which emphasizes the work of each individual and his personal growth self-direction is popularly known as:

- (a) Behaviour Therapy
- (b) Group Therapy
- (c) Client-Centred Therapy
- (d) Humanistic Therapy Ans. D

173. The view that an organism can be understood only as a whole and not as a sum of its components is called:

- (a) Psychoanalytic
- (b) Holistic
- (c) Behaviouristic
- (d) Structuralistic Ans. B

174. The concept that needs arrange themselves in an order in terms of importance from the most basic biological needs to psychological needs is popularly known as:

- (a) Hierarchy of Needs
- (b) Homeostasis
- (c) Reminiscence
- (d) Imprinting Ans. A

175. The residence for ex-mentalpatients who are attempting to return to normal life activities is commonly known as:

- (a)** Asylum
 - (b)** Mental Hospital
 - (c)** Half-way house
 - (d)** Mental Clinics
- Ans. C

176. Which school of Psychology always emphasized whole patternsrather than elements?

- (a)** Behaviourism
 - (b)** Gestalt Psychology
 - (c)** Functionalism
 - (d)** Structuralism
- Ans. B

177. A view of human beings that emphasises the individual's responsibility for becoming the kind of person he should be is called:

- (a)** Behaviourism
 - (b)** Existentialism
 - (c)** Structuralism
 - (d)** Functionalism
- Ans. B

178. Repetition of another person'sactions or gestures is known as:

- (a)** Echolalia
 - (b)** Echopraxia
 - (c)** Enuresis
 - (d)** Estrangement
- Ans. B

179. The school of psychology whichconsiders overt behaviour as its fieldof study is popularly known as:

- (a)** Structuralism
 - (b)** Behaviourism
 - (c)** Functionalism
 - (d)** Gestalt Psychology
- Ans. B

180. A firm belief that everything isunreal, is otherwise known as:

- (a)** Abnormal Delusion
 - (b)** Delusion of persecution
 - (c)** Delusion of Grandure
 - (d)** Nihilistic Delusion
- Ans. D

181. An escape mechanism by whicha person avoids facing frustration bymoving from place to

place or job to job is popularly known as:

- (a) Rationalization
- (b) Nomadism
- (c) Sublimation
- (d) Reaction Formation Ans. B

182. A model or pattern used in the collection and interpretation of data is otherwise known as:

- (a) Control group
- (b) Experimental group
- (c) Paradigm
- (d) Population Ans. C

183. The process of treating abnormal psychological conditions by means of drugs is known as:

- (a) Psychosurgery
- (b) Psychotherapy
- (c) Psychopathology
- (d) Psychopharmacology Ans. D

184. The branch of Psychology which studies psychological aspects of teaching and upbringing is known as:

- (a) Educational Psychology
- (b) Pedagogic Psychology
- (c) School Psychology
- (d) Developmental Psychology Ans. B

185. The sequence of events in the evolution of groups of organisms is known as:

- (a) Phrenology
- (b) Phylogenesis
- (c) Physiognomy
- (d) Pictogram Ans. B

186. The famous doctrine advanced by Franz Gall that human or animal mental features are associated with the shape of the skull is known as:

- (a) Physiognomy
- (b) Phrenology
- (c) Phylogenesis
- (d) Pictogram Ans. B

187. A branch of "Special Psychology" which examines the mental development of the blind and people with poor eyesight is called:

- (a) Tropisms
- (b) Typhopsychology
- (c) Abnormal Psychology
- (d) Clinical PsychologyAns. B

188. E. C. Tolman's theory represents an eclectic approach towards:

- (a) Personality
- (b) Creativity
- (c) Learning
- (d) IntelligenceAns. A

189. In his theory, E. C. Tolman has revealed about a type of learning in which the learner has to identify and determine his own drive state and respond accordingly. Name the type of learning.

- (a) Drive Discrimination
- (b) Field Expectancy
- (c) Equivalence Beliefs
- (d) Field Cognition ModesAns. A

190. For Wilhelm Wundt, attention was a perception of a narrow region of:

- (a) Unconscious
- (b) Consciousness
- (c) Subconscious
- (d) Super egoAns. B

191. The idea of "Consolidation" in memory was depicted by:

- (a) G. E. Muller
- (b) E. B. Titchener
- (c) Wilhelm Wundt
- (d) J. B. WatsonAns. A

192. The concept of "Consolidation in memory" was helpful to explain the phenomenon of:

- (a) Emotion
- (b) Forgetting
- (c) Thinking
- (d) PersonalityAns. B

193. C. G. Lange was a/an:

- (a) American Physiologist
- (b) German Psychologist
- (c) English Psychologist

(d) Danish PhysiologistAns. D

194. According to Guthrie, Thorndike's concept of reward and punishment could also be replaced by:

(a) The law of Readiness

(b) Single trial learning

(c) The law of Effect

(d) The Principle of last responseAns. D

195. According to E.C. Tolman, cathexis is a type of learning in which the association appears to be formed between:

(a) Certain objects and certain drivestates

(b) Stimulus and Organism

(c) Stimulus and Response

(d) Response and OrganismAns. A

196. In which type of Tolman's learning, the motor patterns are associated with or conditioned by behaviour?

(a) Drive Discrimination

(b) Motor patterns

(c) Field cognition modes

(d) Field ExpectancyAns. B

197. E. C. Tolman's "Field Expectancy" learning is not the usualSR learning, rather it is :

(a) S-O-R learning

(b) S-S learning

(c) S-P learning

(d) S-G learningAns. B

198. Very often, a sub-goal like scoring of high grades provides the same motivation as might be provided by the main goal like winning love and appreciation etc.The learning performed in such a condition is said to be the:

(a) Equivalence Beliefs Learning

(b) Field Expectancy

(c) Field cognition modes

(d) Drive DiscriminationAns. A

199. In 1930, E. C. Tolman and his associate Charles Honzik performedan experiment to demonstrate:

(a) Latent Learning

(b) Insightful Learning

- (c) Trial and Error Learning
- (d) Classical Conditioning Ans. A

200. Psychology has a long past, but:

- (a) Short history
- (b) Has no scientific basis
- (c) No system
- (d) No theory Ans. A

201. Prior to 1879, psychology was a part of:

- (a) Sociology
- (b) Philosophy
- (c) Anthropology
- (d) Zoology Ans. B

202. What is the difference between nomothetic and idiographic approaches to personality?

- (a) nomothetic approaches seek to find generalized laws of behaviour that help us classify people in terms of their similarities, while idiographic approaches seek to find what makes people unique
- (b) nomothetic approaches view only the differences between people, while ideographic approaches seek to find similarities
- (c) ideographic approaches try to categorize people, while nomothetic approaches don't
- (d) None of these Answer: A

203. What is one of the main assumptions of the trait approach to personality?

- a. traits are not very stable across the lifespan and are therefore weak predictors of personality
- b. traits stay relatively stable across the lifespan
- c. traits change drastically around the age of 6 years, which has to be taken into account when predicting personality
- d. None of these Answer: B

204. Sophie is a 22-year-old psychology student. She loves reading books and is a great drawer. She does go to parties every now and then, but she prefers to meet her friends for a coffee, movies or cooking together. She does not like to be the centre of attention. How would Eysenck make use of biological explanations to describe Sophie's personality trait?

- (a) he would argue that Sophie has very low arousal levels in her ascending reticular activating system (ARAS)
- (b) he would argue that Sophie's autonomic nervous system is generally less aroused and therefore does not invoke a 'fight-or-flight' response in her
- (c) he would argue that Sophie has high arousal levels in her ascending reticular activating system (ARAS)

(d) None of these Answer: C

205. What are the five personality traits identified by the five-factor model (McCrae & Costa, 1997)?

(a) extraversion, neuroticism, introversion, liveliness and agreeableness

(b) agreeableness, openness to experience, introversion, neuroticism and conscientiousness

(c) extraversion, agreeableness, neuroticism, openness to experience and conscientiousness

(d) None of these Answer: C

206. Peter studies Psychology in his first year. His friends know him as a very keen and eager student. He always carries a book with him and, every free minute, he works on some kind of thinking task. He loves to borrow books from the library that are meant for third year students. What is the best way to describe Peter?

(a) he has a high need for cognition

(b) he has a high need for stimulation

(c) he has a high need for attention

(d) None of these Answer: A

207. Harold works for a big law firm in London. He is often confronted with challenging cases but manages to stay calm and does not stress out about it. He and his colleagues love to go bowling after work, and Harold is very good at it. Often, he wins, which makes him very happy, but he is just as happy when one of his colleagues takes the lead. Which type of personality best describes Harold?

(a) personality Type A

(b) personality Type B

(c) personality Type C

(d) None of these Answer: B

208. Which of the following is NOT given as a criticism of the Type A/B personality theory?

(a) most of the research on Type A personality is purely correlational

(b) there is a lack of cross-cultural research

(c) the questionnaires that claim to measure Type A personality have poor internal reliability scores

(d) None of these Answer: C

209. Allison is a very self-critical, restless and impatient person. She believes her personality can explain her stomach problems. What approach is she taking?

(a) specificity approach

(b) generality approach

(c) specificity approach and generality approach

(d) None of these Answer: A

210. Renee has just recently quit smoking, and she was surprised how easy it was for her compared to the experiences of her friends. What is most likely to be TRUE for her?

- (a) she has a high sense of self-efficacy
- (b) she has an internal locus of control
- (c) she has a high sense of self-efficacy and an internal locus of control
- (d) None of these Answer: C

211. What is meant by

'interactionism' in personality psychology?

- (a) the view that the interaction between people shapes their personalities
- (b) the view that there is reciprocal interaction between personality, situations and the environment
- (c) the view that children should interact with other children as much as possible to shape a personality that will benefit them in their later lives
- (d) None of these Answer: B

212. In a typical memory experiment, participants are asked to recall stimuli in which phase?

- (a) presentation
- (b) test
- (c) material
- (d) distinction Answer: B

213. Participants are NOT told that they will be tested on a list of words presented in an experiment. This provides evidence of

- (a) intentional learning
- (b) a practice effect
- (c) incidental learning
- (d) masked learning Answer: C

214. A test where participants are asked to retrieve in any order stimuli previously presented is

- (a) cued recall
- (b) implicit memory
- (c) explicit memory
- (d) free recall Answer: D

215. Participants take part in an experiment where they learn a number of words and are told that they will be tested later on what they have learned. This is a test of

- (a) explicit memory
- (b) recognition
- (c) implicit memory
- (d) interference Answer: A

216. Storage is

- (a) the stage of memory where information is interpreted and transferred

- (b) the stage of memory where information is committed
- (c) the stage of memory most affected by direct manipulation in experiments
- (d) the stage of memory between presentation of stimuli and before test Answer: D

217. Investigating what factors can affect memory storage can be done by

- (a) manipulating what happens before the test phase
- (b) informing people that they will be tested
- (c) providing recall cues
- (d) manipulating what happens at the presentation phase Answer: A

218. Which is NOT typically used to test memory retrieval?

- (a) dot probe task
- (b) word stem completion
- (c) cued recall
- (d) serial position effects Answer: A

219. With immediate testing, recall accuracy is poorest for items that occur in which position of a list?

- (a) beginning
- (b) middle
- (c) end
- (d) no difference Answer: B

220. Immediately testing recall can lead to greater recall for words at the end of a list. This is

- (a) recency effect
- (b) primacy effect
- (c) serial position effect
- (d) superiority effect Answer: A

221. The recency effect in memory retrieval can be reduced when

- (a) rehearsal is prevented
- (b) short- to long-term memory interference is introduced
- (c) a backwards masking task is used
- (d) retention interval is increased Answer: D

222. Which authors proposed the modal model of memory?

- (a) Lansdale and Baguley (2008)
- (b) Tulving and Thompson (1975)
- (c) Atkinson and Shiffrin (1968)
- (d) Craik and Lockhart (1972) Answer: C

- 223.** The modal model of memory was challenged on the grounds that
- (a) impaired short-term memory does not disrupt long-term memory
 - (b) Short-term memory has a limited capacity
 - (c) longer time in short-term memory predicts likelihood of long-term memory
 - (d) long-term memory has a limited capacity
- Answer: A
- 224.** According to levels of processing, which of the following leads to the deepest level of memory?
- (a) perceptual
 - (b) semantic
 - (c) associative
 - (d) cue dependent
- Answer: B
- 225.** A critical issue with the 'levels of processing' account of memory is
- (a) the distinction between perceptual and semantic processing
 - (b) it is not compatible with the modal model
 - (c) determining the level of processing
 - (d) it does not explain how information is retrieved
- Answer: C
- 226.** Retrieval cues can improve recall because of
- (a) overlap between memories at encoding
 - (b) interference or decay
 - (c) traces still in short-term memory
 - (d) greater storage capacity
- Answer: A
- 227.** 'Specific operations [...] determine what is stored, and what is stored determines what retrieval cues are effective' refers to what term?
- (a) context-dependent memory
 - (b) encoding specificity principle
 - (c) levels of processing
 - (d) forgetting function
- Answer: B
- 228.** Retroactive inhibition is a term of memory
- (a) decay
 - (b) delay
 - (c) retrieval
 - (d) interference
- Answer: D
- 229.** Having prior memory associations that make it difficult to form new memory associations is termed
- (a) proactive inhibition
 - (b) transfer appropriate processing

- (c) time-dependent decay
 - (d) encoding specificity
- Answer: A

230. Which of the following was proposed by Keppel (1968) to be most likely?

- (a) prior learning may interfere with new learning only when items are similar, but new learning interferes with all old learning
 - (b) old learning can interfere with new learning, but new learning interferes with all old learning
 - (c) all forgetting is caused by non-specific proactive inhibition
 - (d) old learning only interferes with new learning when encoded in the same modality
- Answer: A

231. What explains the mathematical forgetting curve?

- (a) retroactive inhibition
 - (b) serial position
 - (c) Jost's law
 - (d) consolidation theory
- Answer: C

232. Lansdale and Baguley (2008) predict that the probability of correct recall depends on

- (a) proportion of correct memory traces
 - (b) encoding specificity
 - (c) context-dependent recall
 - (d) retroactive inhibition
- Answer: A

233. Lansdale and Baguley (2008) argue that memory dilution occurs because

- (a) long-term memory capacity is limited
 - (b) the number of null traces decreases
 - (c) memories become indistinct from similar memories
 - (d) the memory becomes less temporally distinctive
- Answer: D

234. Which element was NOT found to alter accounts of the 'War of the Ghosts' story?

- (a) rationalizations
 - (b) distortions
 - (c) omissions
 - (d) intrusions
- Answer: C

235. The study of how the 'War of the Ghosts' story accounts became altered at recall was carried out by

- (a) Bartlett (1932)
 - (b) Godden and Baddeley (1975)
 - (c) Postman and Phillips (1965)
 - (d) Eysenck (1979)
- Answer: A

- 236.** Eyewitness testimonies are an example of what kind of memory experiment?
(a) intentional learning
(b) context-dependent learning
(c) incidental learning
(d) cue-dependent learning Answer: C
- 237.** Which key academic is involved in the study of memory as a reconstructive process?
(a) A. Baddeley
(b) H. Eysenck
(c) G. Hitch
(d) E. Loftus Answer: D
- 238.** The accuracy of eyewitness testimonies can be improved with
(a) recovered memories
(b) cognitive interviews
(c) noise reduction
(d) neurofeedback Answer: B
- 239.** What can help improve the accuracy of eye witness testimonies?
(a) serial position
(b) context reinstatement
(c) mnemonics
(d) distributed practice Answer: B
- 240.** Memory can be improved when information to be learnt is
(a) organized
(b) written
(c) spoken
(d) elaborated Answer: A
- 241.** Which is a good method of revision:
(a) intense sessions
(b) spaced learning
(c) 1 hour on/1 hour off
(d) late night sessions Answer: B
- 242.** Mood is defined as
(a) a short-lived feeling
(b) being depressed for more than 1 month
(c) a prevailing state of feeling

(d) a temporary depression Answer: C

243. Which of these supports the James-Lange theory of emotion?

- (a) emotion is a visceral response producing a behavioural response
- (b) artificial induction of visceral changes does not necessarily produce emotion
- (c) the viscera are 'insensitive structures'
- (d) visceral changes are the same in many emotions Answer: A

244. The direct emotional circuit controlling fear comprises

- (a) eye, thalamus, sensory cortex, hippocampus, prefrontal cortex
- (b) eye, thalamus, amygdala, hypothalamus
- (c) eye, hypothalamus, visual cortex, striatum
- (d) eye, geniculate nucleus, hippocampus, prefrontal cortex Answer: B

245. Which neurotransmitter is most commonly associated with depression?

- (a) serotonin
- (b) dopamine
- (c) septomin
- (d) glutamate Answer: A

246. Which of the following is NOT an example of an intrinsically motivated activity?

- (a) eating a pie because you like pie
- (b) playing with a toy for the fun of it
- (c) revising for an exam to get a good grade
- (d) reading a book because you enjoy the story Answer: C

247. According to Gray (1972), there are two types of personalities, specifically

- (a) those that are repelled by positive stimuli and those that are attracted to negative stimuli
- (b) those that are attracted to rewarding stimuli and those that tend to avoid aversive stimuli
- (c) those that are motivated by greed and those that are motivated by altruism
- (d) those that believe in simple binary divisions of personality and those that don't Answer: B

248. Which of the following are NOT TRUE of motivation?

- (a) it is the drive, incentive or interest to initiate, perform or maintain a behaviour
- (b) it is independent of emotion or cognition
- (c) it is a preparatory phase prior to action
- (d) it may be influenced by rewards and punishments Answer: B

249. According to the revised reinforcement sensitivity theory (Gray and McNaughton, 2000), the behavioural inhibition system (BIS)

- (a) detects goal conflict between reward and punishment
- (b) gives one a sensitivity to punishment
- (c) gives one a sensitivity to reward

(d) encourages inhibition of reward seeking Answer: A

250. Why do those with orbitofrontal cortex damage perform poorly on the Iowa gambling task?

(a) choices made are random

(b) inability to respond flexibly

(c) motivated by reward only (not losses)

(d) sensitive to punishment of loss Answer: C

251. According to the incentive sensitization theory of addiction (Robinson and Berridge, 1993), increased dopamine as a result of repeated drug use leads to

(a) sensitivity to the rewarding aspect of the drug

(b) neural adaptations in the mesolimbic dopamine system

(c) increased sensitivity seen as facial reactivity to pleasure in the rat

(d) tolerance of the rewarding effect of a drug Answer: B

252. Self-actualization is the process whereby individuals

(a) establish their concept of self

(b) become selfless

(c) reach their full potential

(d) realize their ideal self Answer: C

253. Matsuda et al. (2008) found that there appeared to be a cultural difference between Western and Japanese people's visual interpretations of emotion, specifically that

(a) Westerners seem less sensitive to the visual perception of emotion than Japanese people

(b) Japanese people tend to focus on the mouth, while Westerners seem to look at the eyes

(c) Westerners incorporate social context into emotional perception, while Japanese people tend to see emotions as individual feelings

(d) Japanese people tend to interpret emotions in a group context, while Westerners tend to view emotions in relation to only the individual Answer: D

254. Psychometric scales are

(a) tests used to measure a person's level of psychopathy

(b) an instrument to estimate the mass of a person's brain

(c) survey-type questions that can be used to establish a quantitative measure of a trait, emotion, mood, etc.

(d) questions that assess a person's level of latent psychic ability Answer: C

255. Which region of the brain appears to be responsible for the freeze response to a fear stimulus?

(a) the hypothalamus

(b) the periaqueductal grey matter

(c) the orbitofrontal cortex

(d) the anterior cingulate cortex Answer: B

- 256.** Which of the following brain regions has NOT been identified by researchers as being activated in response to pleasurable emotions
- (a) the anterior cingulate cortex
 - (b) the orbitofrontal cortex
 - (c) the insular cortex
 - (d) the medulla oblongata
- Answer: D
- 257.** A cognitive process that starts with simple processes and builds to the more-complex higher levels is known as
- a. bottom-up processing
 - b. lateral processing
 - c. internal processing
 - d. top-down processing
- Answer: A
- 258.** Deliberately reinterpreting an event with the intention of modifying the emotional response to it is known as
- (a) cognitive distortion
 - (b) cognitive suppression
 - (c) cognitive reappraisal
 - (d) cognitive control
- Answer: C
- 259.** The emotional processing explanation of post-traumatic stress disorder suggests that the patient
- (a) has a cognitive bias that the world is dangerous
 - (b) has a tendency to avoid situations that remind him/her of the trauma
 - (c) has repressed emotional responses
 - (d) has an inability to recognize fear in others
- Answer: A
- 260.** Which of the following best describes the concept of an emotion?
- (a) a response to an external or internal stimulus with the purpose of motivating an action or behaviour
 - (b) an enduring or recurrent state with no specific causes
 - (c) the mental representation of general feelings within an individual
 - (d) a highly illogical concept
- Answer: A
- 261.** TMS is a technique to manipulate activity in a particular brain region. TMS stands for
- (a) Transcranial melatonin stimulation
 - (b) Transatlantic motivation system
 - (c) Transorbital motor sensitization
 - (d) Transcranial magnetic stimulation
- Answer: D

- 262.** According to Tuckman (1965), which of the following is NOT a stage of the life cycle of a group:
- (a) performing
 - (b) norming
 - (c) reforming
 - (d) storming Answer: C
- 263.** The phenomenon whereby an individual in a group will tend to end up agreeing with a strong majority opinion in spite of their own judgement is known as
- (a) normative influence
 - (b) informative influence
 - (c) critical mass influence
 - (d) bullying influence Answer: A
- 264.** The idea that the degree to which you will be influenced by the opinion of another group member will depend on how much you identify with that person is known as
- (a) reactive intransigence influence
 - (b) referent informational influence
 - (c) reconciliation of internal influence
 - (d) reorganizational interest influence Answer: B
- 265.** Which of the following is NOT suggested as an explanation for poor group motivation?
- (a) lack of individual feedback
 - (b) lack of clear performance standards
 - (c) seeing that others aren't pulling their weight
 - (d) latent misanthropic enjoyment of group failure Answer: B
- 266.** The tendency whereby a group reaches a decision by trying to minimize conflict, neglecting to critically test and evaluate ideas, is termed
- (a) group compromise
 - (b) group consensus
 - (c) groupthink
 - (d) group cohesion Answer: C
- 267.** The process whereby the presence of others is suggested to lead to individuals losing their sense of personal identity is termed
- (a) deindividuation
 - (b) deindividualization
 - (c) individualization
 - (d) individuation Answer: A
- 268.** The tendency whereby groups make decisions that are more extreme than the individuals' opinions within the group is termed

- (a) group polarization
 - (b) group cohesion
 - (c) group deindividuation
 - (d) group extremism
- Answer: A

269. Steiner (1972) called losses in group productivity due to poor coordination

- (a) disorganization losses
 - (b) momentum losses
 - (c) process losses
 - (d) laziness losses
- Answer: C

270. Which of the following did Wilfred Bion (1961) NOT observe as a quality that was likely to be present in a group with 'good group spirit'?

- (a) flexibility of group membership
 - (b) the presence of distinct subgroups
 - (c) common purpose
 - (d) valuing of all group members
- Answer: B

271. The so-called 'Hawthorne effect' refers to which group-related phenomenon?

- (a) one person in a group usually does most of the work
 - (b) people in groups tend to try to get away with doing as little as possible
 - (c) people always perform better when they're being watched
 - (d) there is usually one person in a group who will try to argue against the majority
- Answer: C

272. Which of the following terms is used to refer to the potential negative effects of group identification that stem from processes like stigma and rejection?

- (a) the Social Curse
 - (b) the Exclusion Hypothesis
 - (c) the Norm-Violation Problem
 - (d) the Discrimination Dilemma
- Answer: A

273. The term 'groupthink' was coined by

- (a) Janis (1972)
 - (b) Jarvis (1972)
 - (c) Jager (1972)
 - (d) Jarratt (1972)
- Answer: A

274. Groupthink refers to the process by which, when making decisions, the group places more importance on

- (a) reaching a cohesive agreement
- (b) making a quality decision

- (c) reaching a speedy decision
- (d) reaching a well-evaluated decision Answer: A

275. Diener's (1980) explanation of deindividuation posited that deindividuation is the result of

- (a) decreased self-awareness
- (b) decreased responsibility
- (c) increased anonymity
- (d) increased group size Answer: A

276. Group polarization refers to the tendency whereby

- (a) groups make decisions that are more extreme than the individuals' opinions
- (b) conflict of individuals' extreme opinions causes the group to side with the majority
- (c) the opinions of the minority shift to the majority
- (d) groups make decisions that are less extreme than the individuals' opinions Answer: A

277. Which of the following is NOT a type of theory seeking to explain group polarization?

- (a) persuasive argument
- (b) social categorization processes
- (c) social comparison processes
- (d) social conformity processes Answer: D

278. Identification with social groups has been shown to lead to various psychological outcomes. Which of the following is NOT one of them?

- (a) self-esteem
- (b) distinctiveness
- (c) belonging
- (d) narcissism Answer: D

279. According to Tajfel and Turner (1979), which of the following is a primary reason for choosing to identify with a group?

- (a) to avoid loneliness
- (b) a fear of missing out
- (c) a desire to prove loyalty to a stereotype
- (d) to maintain a positive sense of self Answer: D

280. The Social Cure (Jetten et al. 2009 & 2012) refers to

- a. improvements in group cohesion as a result of socializing together
- b. improvements in health and well-being as a result of identification with a group
- c. improvements in social mobility resulting from free social care provision
- d. improvements in health and well-being as a result of socialism Answer: B

- 281.** According to Moscovici (1980), the best way for a minority to exert influence on the majority's opinion is to
- (a) maintain a consistent position over time
 - (b) express extreme opinions
 - (c) stress the importance of their opinion
 - (d) express creative opinions
- Answer: A
- 282.** Tajfel (1978) proposed that a group is
- (a) a set of people who feel that they are a group
 - (b) a set of people who outsiders see as a group
 - (c) a set of people with a common goal
 - (d) a set of people with shared beliefs
- Answer: A
- 283.** An unreasonable or unfair dislike of something, or more usually, someone, typically because they belong to a specific race, religion or group, is referred to as
- (a) stereotyping
 - (b) prejudice
 - (c) scapegoating
 - (d) discrimination
- Answer: B
- 284.** An oversimplified, generalized impression of someone or something is referred to as
- (a) a stereotype
 - (b) prejudice
 - (c) a scapegoat
 - (d) discrimination
- Answer: A
- 285.** The consideration or treatment of others based on general factors (e.g. their race, religion or some other grouping), rather than on individual merit, is termed
- (a) a stereotype
 - (b) prejudice
 - (c) scapegoating
 - (d) discrimination
- Answer: D
- 286.** Someone who is (often unfairly) made to take the blame for something is referred to as
- (a) a scapegoat
 - (b) prejudiced
 - (c) discriminated
 - (d) stereotyped
- Answer: A
- 287.** A stance in which an individual believes that their own race/ethnic group (or aspects of it, e.g. its culture) is superior to those of other groups is termed

- (a) ethnocentrism
 - (b) egocentrism
 - (c) ethnicentrism
 - (d) existentialism
- Answer: A

288. The 'FAH' refers to a tendency whereby individuals frustrated in pursuit of their goals become aggressive. 'FAH' stands for

- (a) frustration-aggression hypothesis
 - (b) frustration-aggravating hypothesis
 - (c) frustration-anger hypothesis
 - (d) frustration-antagonism hypothesis
- Answer: A

289. The social learning theory was put forward by

- (a) Bandura (1977)
 - (b) Freud (1939)
 - (c) Tajfel (1978)
 - (d) Allport (1954)
- Answer: A

290. Goals that different groups share but that can only be achieved by those groups working together are called

- (a) superordinate goals
 - (b) subdominant goals
 - (c) subsidiary goals
 - (d) subliminal goals
- Answer: A

291. According to the social identity theory, which one of our many social identities we adopt depends on:

- (a) an individual's mood
 - (b) social influences
 - (c) the context
 - (d) situational factors
- Answer: C

292. The early theorist who saw prejudice as resulting from inflexible and faulty cognitive processing was

- (a) Duckitt (1954)
 - (b) Allport (1954)
 - (c) Bandura (1954)
 - (d) Sherif (1954)
- Answer: B

293. Which authors investigated the accuracy of eye-witness testimony accounts?

- (a) Steele and Aronson (1995)

- (b) Boon and Davies (1987)
- (c) Blake and Mouton (1961)
- (d) Ferguson and Kelley (1964) Answer: B

294. The concept of ethnocentrism was introduced by

- (a) Sumner (1906)
- (b) Sommers (1906)
- (c) Summer (1906)
- (d) Sollman (1906) Answer: A

295. The restraint required to limit the expression of aggression, in line with the norms of society, is the basis of theories from which school of thought?

- (a) Freudian
- (b) gestaltis
- (c) humanistic
- (d) social learning theory Answer: A

296. The frustration–aggression hypothesis (FAH) was developed by

- (a) Dollard et al. (1939)
- (b) Deschamps and Doise (1978)
- (c) Boon and Davies (1987)
- (d) Hovland and Sears (1940) Answer: A

297. A healthy and restorative outpouring of built-up emotional energy is termed

- (a) catharsis
- (b) cataclysm
- (c) catabolism
- (d) catachresis Answer: A

298. The main finding of Hovland and Sears' (1940) study was

- (a) a positive correlation between the number of lynchings of black people and the price of cotton
- (b) a small, but not significant, relationship between the number of lynchings of black people and the price of cotton
- (c) no relationship between the number of lynchings of black people and the price of cotton
- (d) a negative correlation between the number of lynchings of black people and the price of cotton Answer: D

299. Bandura (1977) saw the expression of aggression as

- (a) a healthy outpouring of energy
- (b) a calming outpouring of energy
- (c) encouraging of future aggressive acts

(d) likely to increase frustration Answer: C

300. Adorno et al.'s (1950) post- World War II publication, which sought to understand the psychological dynamics involved in anti-Semitism and wider ethnocentrism, was entitled

(a) The Authoritarian Personality

(b) The Potential for Fascism

(c) Authoritarianism

(d) The Widening Circle of Covariation Answer: A

301. In Adorno et al.'s (1950) study of ethnocentrism, ethnocentrism was found to be related to the extent to which the person 'liked things as they are', which was termed

(a) political and economic conservatism

(b) ethnocentric traditionalism

(c) traditionalist conservatism

(d) social conservatism Answer: A

302. Altemeyer (1998) devised an instrument, termed the

(a) Right Wing Authoritarianism Scale

(b) The Authoritarian Personality Scale

(c) The Traditionalist Personality Scale

(d) The Ethnocentrism Scale Answer: A

303. Perrin (2005) found that authoritarian values and behaviour may increase in response to

(a) changes in social context, such as unemployment

(b) external threats, such as terrorism

(c) childhood experiences

(d) between-group conflict Answer: B

304. Sherif (1966) saw the psychological processes behind discrimination and prejudice of out-groups as following on from

(a) inter-group relations

(b) material relations

(c) conflict of beliefs

(d) conformity Answer: B

305. Which of the following was NOT an experimental stage under the first two studies of Sherif et al. (1966) on inter-group relations?

(a) friendship development

(b) group formation

(c) introduction of superordinate goals

(d) inter-group competition Answer: C

- 306.** In his theory of inter-group conflict, Sherif (1966) saw discrimination and prejudice of out-groups as mainly due to
- (a) competition for scarce resources
 - (b) differing group values
 - (c) extreme ideologies
 - (d) group idealization
- Answer: A
- 307.** Blake and Mouton (1961) replicated Sherif et al.'s (1966) findings in which group of people?
- (a) school children
 - (b) lecturers
 - (c) business executives
 - (d) medical professionals
- Answer: C
- 308.** Which of the following is NOT one of the four conditions suggested under Allport's (1954) initial contact hypothesis for contact between groups to be encouraged?
- (a) equal social conditions
 - (b) support of authorities within the group of contact
 - (c) common goals between the groups
 - (d) similar group size
- Answer: D
- 309.** Amir contributed to Allport's contact hypothesis, adding the condition for contact between groups to be
- (a) rewarding
 - (b) close
 - (c) for a sustained period
 - (d) equal
- Answer: A
- 310.** The concept of superordinate goals derives from
- (a) group conflict theory
 - (b) behavioural conflict theory
 - (c) realistic conflict theory
 - (d) social conflict theory
- Answer: C
- 311.** Which of the following is NOT listed as a predictor of collective action in van Zomeren, Postmes and Spears' social identity model of collective action (SIMCA)?
- (a) perceived injustice
 - (b) perceived efficacy
 - (c) a sense of social identity
 - (d) a sense of superiority
- Answer: C



UNIT - 8

SOCIAL PSYCHOLOGY

Social Psychology

WHAT IS NATURE, SCOPE AND HISTORY OF SOCIAL PSYCHOLOGY?

NATURE, SCOPE AND HISTORY OF SOCIAL PSYCHOLOGY

The last century witnessed the creation of new sciences and specialised branches for specific needs together with the technological developments that have changed the scenario of education and knowledge. New social realities generated new problems. Social psychology came into existence at the time when the world was undergoing a great upheaval. A significant number of facts in the fields of linguistics, anthropology, ethnography and archaeology needed interpretation for various facts.

This need manifested itself in the development of two sciences regarded as the parents of social psychology: psychology and sociology. Societies manifest themselves through the activities of people, through communication and interaction and in turn shape the behaviour of individuals.

The study of social psychology enable us to understand the dynamics of human behaviour in social situations and what effects do these situations exert on individuals and in what ways are these situations get changed by the behaviour of the individuals. Social psychology intrudes social life by providing practical recommendations in various areas.

The practical needs of the discipline have been increased by the increased demand for efficient management in the areas of industry, education, health, mass communication system, struggle against anti-social behaviour, public services and sports etc. In this unit we will discuss the concept and definition of social psychology, its background and developments and its relation to other social sciences. Floyd Allpor (1924) has defined social psychology as “the scientific study of the experience and behaviour of individuals in relation to other individuals, groups and culture”.

A similar definition by Gordon W. Allport (1968) states that social psychology is a discipline “that attempts to understand and explain how the thought, feeling and behaviour of an individual are influenced by the actual, imagined or implied presence of others.” The above definitions include the elements: scientific study, experience and behaviour, individual, group and culture that throw light upon the nature of the discipline. These elements are elaborated below:

Social Psychology is Scientific in Nature Social psychology is scientific in its approach to the range of topics it deals. One may find many common sense explanations and literary works that tell us about interpersonal relations, love, jealousy, aggression, altruism (helping behaviour) and the roles of individuals in groups. The difference lies in the approach that a social psychologist adopts. It adopts scientific methods which we will discuss later but in all the methods a three step basic process has been employed (McDavid and Harari, 1994):

- The collection of carefully made observations. Careful observation requires gathering of information about issues and processes of interest, plus an attitude of scepticism.
- The ordered integration of these observations and the statement of general principles.

The utilisation of these general principles to predict future observations. As an example we can take this statement, “When people try to dismiss those who ask the big public questions on being emotional, it is a strategy to avoid debate.”¹ How do we proceed to check the validity of the statement? First, we have to see the bi national or international issues, big in the sense they raise

problems of wider concern, like the displacement of inhabitants of a particular place due to some projects. After this we will have to select a representative sample population and get their opinions.

SCOPE OF SOCIAL PSYCHOLOGY Social psychology attempts to understand the relationship between minds, groups, and behaviors in three general ways:

1. It tries to see how the thoughts, feelings and behaviours of individuals are influenced by the actual, imagined, or implied presence of other(s). This includes social perception, social interaction, and the many kinds of social influence (like trust, power, and persuasion). It deals with questions like: How do small group dynamics impact cognition and emotional states? How do social groups control or contribute to behaviour, emotion, or attitudes of the individual members? How does the group impact the individual? How does the individual operate within the social group? It tries to understand the influence that individual perceptions and behaviours have upon the behaviour of groups. How does persuasion work to change group behaviour, emotion or attitudes?
2. Second, it tries to understand the influence that individual perceptions and behaviours have upon the behaviour of groups. This includes looking at things like group productivity in the workplace and group decision making. It looks at questions like: What are the reasons behind conformity, diversity, and deviance?

Third, and finally, social psychology tries to understand groups themselves as behavioural entities, and the relationships and influences that one group has upon another group. It asks questions like: What makes some groups hostile to one another, and others neutral or civil? Do groups behave in a different way than an individual outside the group? In European textbooks there is also a fourth level called the "ideological" level. It studies the societal forces that influence the human psyche.

HISTORICAL DEVELOPMENTS: THE EMERGENCE OF MODERN SOCIAL PSYCHOLOGY

To understand the contribution of social psychology and what is distinct about it, we need to know its historical origins. The formation of pre-conditions of social psychology is as a whole the same as the development of any other scientific discipline.

The socio-psychological ideas originally took shape within the realm of philosophy and then gradually branched off from the system of psychological knowledge.

First we will briefly discuss the social thought before the advent of social science and then discuss the second stage of the development of social psychology which is deemed to be "more productive."

SOCIAL THOUGHT BEFORE THE ADVENT OF SOCIAL SCIENCE

Two earlier forms of social thought over the centuries are Platonic and Aristotelian. Platonic thought emphasised the primacy of state over the individual who had to be educated to become truly social. Aristotelian thought states that human being is social by nature and nature can be trusted to enable individuals to live together and to enter personal relationships from which families, tribes and ultimately the state will naturally develop.

In modern times these two traditions of social thought have been known as socio centred approach and individual centred approach. Socio centred approach emphasises the determining function of social structures (systems, institutions and groups) for individual experience and behaviour. According to the individual centred approach social systems are said to be explicable in terms of

individual processes and functions. For Hegel (1770-1831), the German philosopher, the state is not only the ultimate form of society but the incarnation of the objective social mind of which individual minds are active participants. The notion of Group Mind derived from Hegel's supra-individual nature. Social psychology from its beginning has been defined as the scientific study of the individual in the social context. Individualism has been an inherent property of the discipline. Individualistic doctrine says that all the explanations of individual social phenomena are to be rejected unless they are expressed in terms of individual. Individualism in psychology has been characterised and criticised for the self centred denial of the other. Individualism has appeared in two forms in sociological thought: Hedonism: People act in order to secure and maintain pleasure and to avoid and reduce pain.

Utilitarianism: The doctrine that advocates the pursuit of the greatest happiness of the greatest number. For most modern theories of conditioning and of motivation, the underlying ideas of individual satisfaction (reinforcement, reward, reduction of stress, of dissonance, uncertainty) are variations of the pleasure or utility principle. Utility and satisfaction are important constructs involved in many social psychological theories.

From Machiavelli (1513) and Thomas Hobbes (1651) the concept of power and its role in social relationships returned in social psychology. The concept of social power (social influence) found its proper frame of reference in the field theory and social exchange theory. In Lewinian field theory 'power' became the term for the potential to influence others while control and influence refer to the power of action. Research areas where power has been studied are: aggression, conformity to group pressure and obedience to authority, and power in language.

Modern social psychology was also influenced by the developments in the nineteenth century in two major areas: sociology and theory of evolution. We will discuss these influences later under the titles: social psychology and other disciplines and the influence of evolutionary theory will be discussed in current trends in social psychology.

WHAT IS TRADITIONAL THEORETICAL PERSPECTIVES: FIELD THEORY, COGNITIVE DISSONANCE, SOCIOBIOLOGY, PSYCHODYNAMIC APPROACHES, SOCIAL COGNITION? TRADITIONAL THEORETICAL PERSPECTIVES: FIELD THEORY

At the outset I must point out that field can mean two things: a region of space (such as psychological, social, cultural, or linguistic spaces) within which things are located as a function of space-time coordinates or the area in which a force operates. The latter presupposes the former and adds to it the notion of forces spread continuously throughout the region.

I will call the former view a spatial theory and the latter a field theory. It is helpful to keep this distinction in mind when considering psychological and social science perspectives, approaches, and theories, for what is called a field is often meant as a particular space, as in Arthur Bentley's or in Pitirim Sorokin's work. In this and in subsequent chapters, I will limit my survey to self-professed field theories of humankind, or such applications, or studies clearly involving a field perspective. This will eliminate from consideration many spatial theories, such as those of Osgood, Sorokin, Parsons, Cattell, and Bentley, or theories of social gravity and of social distance, but not those spatial theories explicitly meant by their authors to be field theories, such as Quincy Wright's.

Perhaps we can most appropriately begin this discussion with psychological fields, particularly as proposed in Gestalt theory, and move to Kurt Lewin's work, with which field theory has become most

associated for social scientists, and then to his successors. Subsequently, I will consider sociocultural fields and Ushenko's field of power.

This review is not a comprehensive survey, as such¹ My purpose is to exemplify the use of "field" in our attempts to understand ourselves, particularly as these attempts create insight into the nature of our intentional field and its eventual bearing on violence and war. A picture is enhanced and its central figures better seen against a well-constructed background. These chapters in Part I of *The Dynamic Psychological Field* comprise such a background.

Field theory in the social sciences has become indelibly associated with Kurt Lewin's name. For this reason and because Lewin's work stands in ancestral line to the field orientation of this book, *The Dynamic Psychological Field*, and to that of subsequent field theorists, I will devote some time to his ideas. As a young man in Germany, Lewin was attracted to Gestalt psychology, perhaps partly due to his experiences as a soldier in World War I and his observations on how battlefield involvement affects perception, and perhaps partly because of his quantitative experiments and consequent disillusionment with the classic theory of association. Soon after the war, Lewin accepted an appointment at the Psychological Institute, University of Berlin, where the Gestaltists, Köhler and Wertheimer (who was director), were accomplishing their famous research.

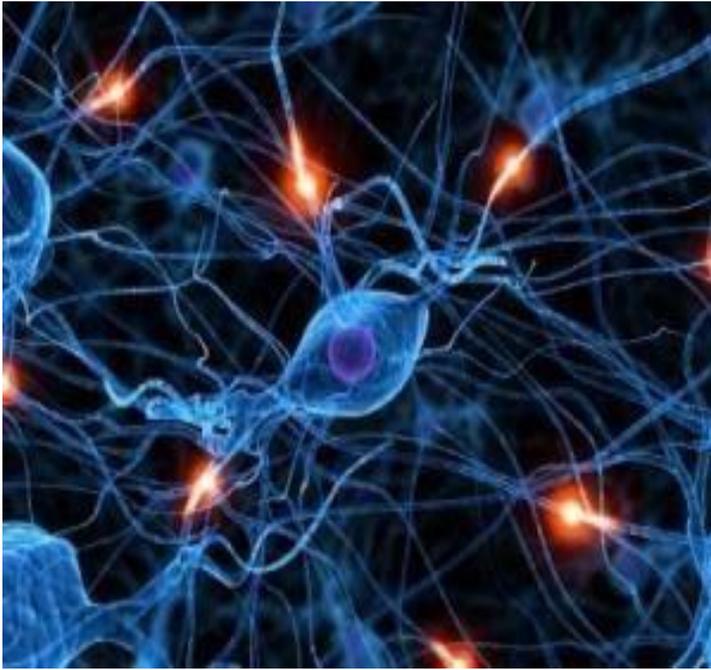
He remained there until Hitler's assumption of power caused Lewin (a Jew) to seek and accept a position in the United States. By then, through his students, research, and writings, he had developed a considerable reputation, and in his new homeland he continued to enhance it. By the time of his death in 1947, some psychologists were convinced that Lewin's name should rank with Freud's among those contributing the most to contemporary psychology.

COGNITIVE DISSONANCE

Cognitive Dissonance Theory Definition

Introduced by Leon Festinger in 1957—and since that time debated, refined, and debated again by psychologists—cognitive dissonance is defined as the aversive state of arousal that occurs when a person holds two or more cognitions that are inconsistent with each other. The concept of dissonance was once enormously controversial, but its support through five decades of research has made it one of the most widely accepted concepts in social psychology.

Cognitive dissonance theory can explain a variety of ordinary and extraordinary events in our social lives. Indeed, for a concept to have a long and active "shelf life" as dissonance, it must either help us see our social world differently, help us to understand why certain phenomena occur, or allow us to make (and confirm) interesting and nonobvious predictions about human nature. The theory of cognitive dissonance has accomplished all three.



To break the definition into its components, let us consider first what is meant by inconsistent cognitions, for it is the simultaneous holding of inconsistent cognitions that gives rise to the experience of dissonance. Festinger thought of a cognition as any piece of knowledge that we have. We can have knowledge about our beliefs, our behavior, our feelings, or about the state of the environment. We may have dozens of cognitions of which we are at least dimly aware at any moment in time and innumerable more of which we can become aware, once our attention or memory is set in motion. Most of the cognitions that we have are not related to each other in any obvious way. For example, my knowledge that I am hungry and my knowledge that the Earth travels around the Sun are two cognitions, but my hunger bears no relationship to the trajectory of the planets. However, some cognitions are directly related. My knowledge that I am hungry is very much related to my behavior at the local restaurant in which I am sitting. If I order a meal, the knowledge of that behavior is related to my knowledge that I'm hungry. In fact, it is quite consistent with my hunger. However, if I decide to forego the meal, or simply order a cup of coffee, my ordering behavior is again related to my hunger, but this time it is inconsistent.

Cognitive dissonance is all about the consequences of inconsistency. We prefer consistency to inconsistency and work hard to maintain (or restore) consistency among our cognitions. Failing to order food to allay my hunger at the restaurant, I may convince myself that I was not really that hungry, or that the restaurant's food was bad. In this way, the inconsistency between my knowledge of my hunger and the decision not to purchase food would seem more consistent. In many ways, the need to restore consistency is similar to the familiar concept of rationalization—indeed, rationalization is one way to deal with the dilemma posed by inconsistent cognitions.

Formally, the state of cognitive dissonance occurs when a person holds one cognition that follows from the obverse of another cognition. For example, not ordering food at the restaurant would follow from the obverse or opposite of being hungry. If I were full, I would not be expected to order food. But I was not full, and thus the decision to refrain from eating would follow from the obverse of my knowledge that I was hungry. The condition for dissonance is met.

How does cognitive dissonance feel? Dissonance is experienced as an unpleasant emotion, akin to feeling uncomfortable, bothered, or tense. In addition, dissonance is motivational. When we experience dissonance, we are motivated to reduce it, much like the way we are motivated to reduce physical drives such as hunger and thirst. The more dissonance we experience, the more we are motivated to find a way to reduce it. This need can lead to the kinds of rationalizing behaviors, such as those encountered in the restaurant scenario. Not ordering food when hungry creates a state of cognitive dissonance. Rationalizing, by convincing ourselves that we were not so hungry after all, reduces the inconsistency and thereby reduces the unpleasant state of dissonance.

THE HISTORY OF COGNITIVE DISSONANCE RESEARCH: PREDICTIONS AND FINDINGS

Choices, Choices

The occasions that cause us to experience dissonance are ubiquitous. Whenever we make a choice, there is the potential for dissonance. Imagine that you are purchasing an automobile. It is a tough choice with many alternatives from which to choose. Let's say you have narrowed the field to your two favorite options: a slightly used BMW and a brand-new Neon. **You** consider the pros and cons of each car. The BMW is fast, gorgeous, and attracts positive attention. The Neon is new, so you can get a full selection of colors and a multiyear warranty. On the other hand, the BMW, being old, is more likely to break down, the cost of repairs is high, and you must take it in green. The downside of the Neon, you believe, is that it is slow, less attractive, and handle sluggishly. You choose the BMW, satisfied that, on balance, it provided more of what you were looking for than the Neon.

But wait... you have now selected a car that has several negative features. What if it breaks down? What if your friends hate the color green? And what do you do about the features of the Neon that you are giving up? You liked the warranty, and now you don't have it. You liked the price, but you've now spent more money buying the BMW. All of these thoughts are inconsistent with your decision to buy the BMW. According to the theory of cognitive dissonance, you experience an unpleasant tension. Each time you think of a cognition that supported the Neon over the BMW, your tension rises. You are driven to reduce it. What can you do? Here are some possibilities: (a) You can increase the importance of some of the factors that caused you to like the BMW in the first place. Suddenly, speed seems like the most important dimension you can think of when it comes to buying a car. (b) You can reduce the importance of some of the good features of the Neon. For example, you decide that warranties are often deceptive and the parts of cars that break are usually not covered. (c) You can add cognitions that support your choice that you hadn't considered previously. You may think about how many more people will be friends with you when you drive the BMW or how many people would have thought you were dull if you had picked the Neon. In the end, you may perform any or all of the cognitive changes that help you reduce your dissonance. And there is a measurable consequence to these cognitive changes. When you made your choice, you liked the BMW a bit more than you liked the Neon. By the time you are finished with your rationalizations and distortions that have been at the service of reducing cognitive dissonance, you will like the BMW much better than the (now) boring little Neon.

The predictions in the automobile purchasing scenario were confirmed in the first reported laboratory research on cognitive dissonance. In his 1956 study, Jack W. Brehm asked consumers to rate a variety of household items such as blenders and toasters. He told the consumers that they would be able to take home one of two items from the longer list of products. To create a high degree

of dissonance, similar to the automobile example, Brehm asked the participants to choose between two highly attractive, closely related products. Brehm predicted that, just like the hypothetical BMW example, the consumers would rate the chosen product much more highly than they had rated it previously, and that they would downgrade the product that they did not choose. This is exactly what happened.

CHANGING YOUR ATTITUDES FOR LESS

Here is another “thought experiment”: Imagine that a researcher asks you to write an essay in which you argue that tuition rates at public and private colleges should increase. The researcher tells you that the Dean of your college is trying to understand the arguments in favor of and against tuition increases, and you have been asked to write in favor. You think to yourself that this would be difficult because you do not want to see tuition rates increase. The researcher tells you that you can decide whether or not to write the essay, but he would really appreciate your doing it. You think it over and then agree. Now, you have a cognitive dissonance dilemma. Writing an essay in favor of a tuition increase is discrepant with your negative attitude about tuition. But you agreed that you would write it. This scenario should arouse dissonance. What can you do? Among the alternatives at your disposal is to decide that you really are not against tuition increases after all. If you actually believe that it is okay to raise tuition rates, then there will not be any cognitive dissonance resulting from your writing the essay. Similarly, it may be that politicians who are cajoled to support an issue that they initially do not believe suffer the aversive state of dissonance and reduce it by coming to believe the position that they had just advocated— even though they did not believe it when they agreed to make the speech.

Once again, research in the laboratory demonstrated the truth of this prediction. Just as in the previous scenario, Festinger and his student, J. Merrill Carlsmith, showed that college students who agreed to make a speech with which they initially disagreed came to believe in the position they advocated following the speech. But there was more to this scenario: The students were given a monetary incentive to say what they did not believe. Would the magnitude of the incentive affect attitude change? Would speakers who received a large reward for making such a statement come to believe it more than students who received only a small token? Such a prediction may seem reasonable from what is known about the usual effects of rewards. Pigeons, rodents, and even humans have been shown to learn and act based on the magnitude of reward they receive for their behavior. However, dissonance theory makes a startling and nonobvious prediction—the lower the reward, the greater will be the attitude change. The magnitude of cognitive dissonance is increased by the magnitude and importance of the inconsistent cognitions a person holds, but it is reduced by the magnitude and importance of the consistent cognitions. Knowing that you made a speech that is contrary to your opinion is a cognition inconsistent with your opinion. On the other hand, receiving a bundle of money as a reward for the speech is a cognition quite consistent with giving the speech. The higher the reward is, the more important consistent cognition becomes. Therefore, making a counterattitudinal speech for a large reward results in less overall dissonance than making the same speech for a small reward. This is what Festinger and Carlsmith found: The lower the reward was for making the speech, the greater the attitude change was in favor of tuition increase. The notion that people change their attitude following counterattitudinal behavior has become known as the psychology of induced compliance. The finding that attitude change increases as the magnitude of the inducement decreases is perhaps the most telling signature that cognitive dissonance has been aroused.

TO SUFFER IS TO LOVE

Imagine that you have decided to join a sorority or fraternity at your college. You know that you have to undergo some form of pledging ritual to join. The pledging will not be fun and may be uncomfortable and embarrassing, but you decide to do it. Will the pledging affect your view of how attractive the sorority or fraternity is? The theory of cognitive dissonance makes another bold and nonobvious prediction: The greater is the suffering involved in the pledging, the more you will be motivated to like the club you are trying to enter. The knowledge that you chose to endure some degree of discomfort and unpleasantness is discrepant with your typical desire to have pleasant rather than difficult experiences. However, in this scenario, there is a reason that you engaged in a difficult, less-than-pleasant pledging ritual: You wanted to join the group. Wanting to be a member of the group is the cognition that makes your suffering seem to make sense. Any dissonance created by your decision to endure the pledging is explained or justified by how enjoyable it will be to participate in the group. The more uncomfortable the group's pledging procedure is, the more you need to find a reason for enduring it. And the justification can be made very compelling by distorting how good you think the group really is. Therefore, the prediction from cognitive dissonance theory is that the act of pledging will make the group seem attractive— and the more difficult or noxious the pledging is, the more attractive the group will seem. This phenomenon has been called effort justification.

Two social psychologists, Elliot Aronson and Judson Mills, tested the logic of effort justification in an experiment in which they had students undergo a screening test to join a group that was discussing the topic of sex. For some students, the screening was made avowedly difficult and embarrassing; for other students, the screening was less so. Although the group and the group members were precisely the same, those students who had the more embarrassing and difficult screening found the group discussion to be more interesting and the group members to be more attractive. By convincing themselves that the group was wonderful, the students were able to reduce the dissonance that had been aroused by their volunteering to engage in a difficult, embarrassing screening.

Volunteering to engage in difficult, effortful tasks happens frequently in our lives. Courses we choose to take may require a great deal of preparation, reading, and homework. Sports programs may require us to spend considerable amounts of time in training and in enduring the outbursts of demanding coaches. Yet, the very act of agreeing to participate in such effort has a positive consequence: It pushes us to like the activity for which we suffered.

COGNITIVE DISSONANCE AND SOCIAL LIFE

Cognitive dissonance is ubiquitous. We like to think of ourselves as psychologically consistent human beings—that we act in ways that are consistent with our attitudes and that our attitudes are typically consistent with each other. We like to think that we make good choices and act in our own best interests. However, life often throws us curves that create inconsistency. The choices we make often lead us to dilemmas in which we need to relinquish some aspects of a rejected alternative that we would really like or to accept aspects of our chosen alternative that we would rather not have to accept. Sometimes, we find ourselves engaged in effortful activities that make little sense or find that we have to say or do things that do not quite fit with our private attitudes. These occasions cause us to experience dissonance—that uncomfortable state of tension that Festinger introduced in 1957. We do not live with the tension; rather, we take action to reduce it. And that is what is so interesting about cognitive dissonance. In our effort to reduce dissonance, we come to distort our

choices to make them seem better, we come to like what we have suffered to attain, and we change our attitudes to fit our behaviors. Discovering and explaining the processes behind these occasions pervading our social life has been the hallmark of research on the theory of cognitive dissonance.

SOCIOBIOLOGY

In 1975, Harvard biologist Edward O. Wilson published *Sociobiology: The New Synthesis*, wherein he outlined a framework for investigating the biological basis of social behavior. As a branch of evolutionary biology, sociobiological theory aims to use demographic parameters (e.g., growth and mortality rates, gender and age distributions) and the genetic structure of populations to predict patterns of social organization across species. One of the conceptual tools sociobiology contributes to investigations of social behavior is an analysis of ultimate causation. Whereas proximate causal analyses focus on, for example, the behavioral, developmental, physiological, or neural mechanisms operating within an individual's lifetime to produce a particular phenotype, an ultimate causal analysis focuses on the selective forces that operated over generations and led to the evolution of the specific phenotype manifest in the individual.

In this way, proximate explanations answer the question of how mechanisms operate (e.g., the catalog of hormones, neurotransmitters, and brain regions governing behavior); ultimate explanations answer the question of why they were selected for (i.e., how a particular trait affected the probability of survival and reproduction).

Sociobiologists have made progress in understanding a wide range of behaviors, both their proximate mechanisms and ultimate functions, including altruism, patterns of communication, aggression, mating systems, and parental care of offspring. Such behaviors have been investigated in a wide range of species including ants, birds, frogs, and chimps. Wilson's volume sparked heated controversy regarding his last chapter, which extended the principles of evolutionary ultimate causation and population genetics to explain the social behavior of humans.

Among the many reasons for this controversy were

- a) misunderstandings about sociobiology and genetic determinism and,
- b) the long-held view in the social sciences that social behavior in humans is the product of cultural forces, rather than biological ones. Many opponents mistook sociobiology for arguing that social behaviors are genetically fixed and immutable when, in fact, much of sociobiology focuses on how evolved social behavior is capable of adapting to different environmental situations (e.g., morphological and behavioral change given particular environmental cues). Controversy also occurred because sociobiology ran counter to the prevailing view in the social sciences. Indeed, one goal of sociobiology is the reshaping of the humanities and social sciences to make them consistent with the principles of modern evolutionary biology.

Though based on many of the same principles, sociobiology is distinct from evolutionary psychology. Although both disciplines consider ultimate causal explanations, evolutionary psychology uses this level of analysis to construct models of the information processing circuitry (i.e., the cognitive programs) required to produce an adaptive response. In contrast, sociobiology steps from selective forces (e.g., limited resources) to social behavior (e.g., aggression) without making explicit the kinds of cognitive programs required to produce a particular behavior. So, though related, there exists a set of non-overlapping goals distinct to each field. Nevertheless, sociobiology

and its related disciplines take seriously the claim that principles derived from the modern synthesis, which united Darwin's theory of evolution and Mendelian genetics, can be used to explain the constellation of behaviors in humans and nonhumans alike.

PSYCHODYNAMIC APPROACHES

The psychodynamic theory is a psychological theory Sigmund Freud (1856-1939) and his later followers applied to explain the origins of human behavior.

The psychodynamic approach includes all the theories in psychology that see human functioning based upon the interaction of drives and forces within the person, particularly unconscious, and between the different structures of the personality.

Sigmund Freud's psychoanalysis was the original psychodynamic theory, but the psychodynamic approach as a whole includes all theories that were based on his ideas, e.g., Carl Jung (1912), Melanie Klein (1921), Alfred Adler (1927), Anna Freud (1936), and Erik Erikson (1950).

The words psychodynamic and psychoanalytic are often confused. Remember that Freud's theories were psychoanalytic, whereas the term 'psychodynamic' refers to both his theories and those of his followers. Freud's psychoanalysis is both a theory and therapy.

Sigmund Freud (writing between the 1890s and the 1930s) developed a collection of theories which have formed the basis of the psychodynamic approach to psychology.

His theories are clinically derived - i.e., based on what his patients told him during therapy. The psychodynamic therapist would usually be treating the patient for depression or anxiety related disorders.

BASIC ASSUMPTIONS

Our behavior and feelings are powerfully affected by unconscious motives:

The unconscious mind comprises mental processes that are inaccessible to consciousness but that influence judgments, feelings, or behavior (Wilson, 2002).

According to Freud (1915), the unconscious mind is the primary source of human behavior. Like an iceberg, the most important part of the mind is the part you cannot see.

- Our feelings, motives, and decisions are actually powerfully influenced by our past experiences, and stored in the unconscious.
- Our behavior and feelings as adults (including psychological problems) are rooted in our childhood experiences:
- Psychodynamic theory states that events in our childhood have a great influence on our adult lives, shaping our personality. Events that occur in childhood can remain in the unconscious, and cause problems as adults.
- Personality is shaped as the drives are modified by different conflicts at different times in childhood (during psychosexual development)
- All behavior has a cause (usually unconscious), even slips of the tongue. Therefore all behavior is determined:

- Psychodynamic theory is strongly determinist as it views our behavior as caused entirely by unconscious factors over which we have no control.
- Unconscious thoughts and feelings can transfer to the conscious mind in the form of parapraxes, popularly known as Freudian slips or slips of the tongue. We reveal what is really on our mind by saying something we didn't mean to.
- Freud believed that slips of the tongue provided an insight into the unconscious mind and that there were no accidents, every behavior (including slips of the tongue) was significant (i.e., all behavior is determined).
- Personality is made up of three parts (i.e., tripartite): the id, ego, and super-ego:
- The id is the primitive and instinctive component of personality. It consists of all the inherited (i.e., biological) components of personality present at birth, including the sex (life) instinct – Eros (which contains the libido), and the aggressive (death) instinct - Thanatos.
- The ego develops in order to mediate between the unrealistic id and the external real world. It is the decision making component of personality.
- The superego incorporates the values and morals of society which are learned from one's parents and others.
- Parts of the unconscious mind (the id and superego) are in constant conflict with the conscious part of the mind (the ego). This conflict
- creates anxiety, which could be dealt with by the ego's use of defense mechanisms.

SOCIAL COGNITION

How exactly do psychologists define social cognition? While there is no single definition, there are some common factors that many experts have identified as being important.

Social cognition involves:

- The processes involved in perceiving other people and how we come to know about the people in the world around us.
- The study of the mental processes that are involved in perceiving, remembering, thinking about, and attending to the other people in our social world.
- The reasons we attend to certain information about the social world, how this information is stored in memory, and how it is then used to interact with other people.

Social cognition is not simply a topic within social psychology—it is an approach to studying any subject with social psychology. Using a social- cognitive perspective, researchers can study a wide range of topics including attitudes, person-perception, prejudice, stereotypes, self- concept, discrimination, persuasion, decision-making, and other areas.

Examples

Imagine that you are getting ready to go on a blind date. Not only do you worry about the impression and signals that you are sending to the other person, but you are also concerned with interpreting the signal given by your date. How do you form an impression of this person? What meaning do you read into the other person's behavior?

This is just one example of how social cognition influences a single social interaction, but you can probably think of many more examples from your daily life. We spend a considerable portion of every day interacting with others, which is why an entire branch of psychology formed to help understand how we feel, think, and behave in social situations.

Development

Social cognition develops in childhood and adolescence. As children grow, they become more aware not only of their own feelings, thoughts, and motives but also of the emotions and mental states of others. Children become more adept at understanding how others feel, learning how to respond in social situations, engaging in prosocial behaviors, and taking the perspective of others.

While there are many different theories that look at how social cognition develops, one of the most popular focuses on the work of the psychologist Jean Piaget. According to Piaget, a child's cognitive development goes through a series of stages.

- During the earliest stages of development, children are very egocentric. They see the world from their own perspective and struggle to think about how other people may view the world.
- As children grow older, children become increasingly adept at perspective-taking and have an increased ability to think about how and why people act the way they do in social situations.
- More recently, research has provided evidence that children develop the ability to think about the perspectives of other people at an earlier age than Piaget previously believed. Even young preschoolers exhibit some ability to think about how other people might view a situation.

One of the most important developments in the early emergence of social cognition is the growth of a theory of mind. A theory of mind refers to a person's ability to understand and think about the mental states of other people.

It is the emergence of a theory of mind that is critical to being able to consider the thoughts, motives, desires, needs, feelings, and experiences that other people may have. Being able to think about how these mental states can influence how people act is critical to forming social impressions and explaining how and why people do the things that they do.

Cultural Differences

Social psychologists have also found that there are often important cultural differences in social cognition. When looking at a social situation, any two people may have wildly different interpretations. Each person brings a unique background of experiences, knowledge, social influences, feelings, and cultural variations.

Some researchers have found that there are also collective, cultural influences that can affect how people interpret social situations. The same social behavior in one cultural setting may have a very different meaning and interpretation if it was to take place or be observed in another culture.

As people interpret behavior, extract meaning from the interaction, and then act based upon their beliefs about the situation, they are then further reinforcing and reproducing the cultural norms that influence their social cognitions.

Research and Challenge

Research into social cognition is ongoing. But there are also challenges to some established theories.

Future Areas of Study

So what are some of the different questions related to social cognition that researchers are

interested in understanding? Our perceptions of others play such an important role in how we forge relationships, how we interact with others, how we treat others, and how others treat us.

Some of the topics that psychologists are interested in when it comes to social cognition include:

- How do we develop attitudes? What role do these attitudes play in our social lives?
- How do we interpret other people's feelings and emotions? How do we figure out what they are thinking or feeling? What cues or indicators do we use to make these assumptions?
- How is self-concept formed and how does it influence our relationships with others?
- What influence do our thoughts have on our feelings?
- What mental processes influence person perception, or how we form impressions of other people?

Challenges

One criticism of some of the research on social cognition suggests that it is too focused on individualistic behavior. Because the topic itself is so social, some suggest that many of the information-processing models that have traditionally been used to understand the cognitive processes behind social cognition are too limited. Focusing on the collective and interactive aspects of human thought may provide a better understanding of how people think about and understand social behavior.

WHAT IS SOCIAL PERCEPTION [COMMUNICATION, ATTRIBUTIONS]; ATTITUDE AND ITS CHANGE WITHIN CULTURAL CONTEXT; PROSOCIAL BEHAVIOR?

SOCIAL PERCEPTION [COMMUNICATION, ATTRIBUTIONS]; ATTITUDE AND ITS CHANGE WITHIN CULTURAL CONTEXT; PROSOCIAL BEHAVIOR

Social perception [Communication, Attributions];

Social Perception versus Faces

The Social Perception and Faces subtests both require processing facial information. When patients have low scores on Social Perception and Faces, they may have a general deficit in face processing that may be affecting their performance on the Social Perception test. In contrast, patients whose Social Perception scores are low and whose Faces scores are within normal limits are likely to have intact face processing, suggesting a specific deficit in emotion recognition or processing of emotional content. Lastly, low scores on Faces with Social Perception scores within normal limits suggest difficulties with face memory, but not necessarily with other aspects of face discrimination. Social Perception measures comprehension of social communication, including facial affect recognition and naming, affect recognition from prosody and facial expressions, and affect recognition from prosody and interaction between people. Three tasks comprise Social Perception: Affect Naming, Prosody-Face Matching, and Prosody-Pair Matching. In Affect Naming, the examinee is shown photographs of faces and selects an emotion from a card to describe the affect demonstrated in the photograph. In Prosody-Face Matching, the examinee hears an audio-recorded statement and selects one face from four choices that matches the emotion expressed in the recording.

In Prosody-Pair Matching, the examinee hears an audio-recorded statement and selects one photograph of interacting pairs of individuals from four choices that matches the meaning of the speaker's statement. For Prosody-Face Matching and Prosody-Pair Matching, the statement content may not match the emotion expressed. This intentional lack of matching allows for better

measurement of more subtle forms of communication, such as sarcasm. Available scores assess the examinee's overall performance, as well as the individual skills measured within and across the three tasks.

SOCIAL PERCEPTION

Social perception is typically partitioned into two categories, namely facial perception and vocal perception (Green et al., 2015). Vocal perception involves recognizing and discriminating acoustic properties of speech, and the affective information they convey, where facial perception is decoding affective information from others' facial expressions. Inherent in both categories is the ability to read others' emotional cues.

Generally speaking, there is evidence that individuals with schizotypy show mildly impaired performance on tasks of social perception, though the nature of these impairments has not replicated well across studies. For example, van't Wout, Aleman, Kessels, Larøi, and Kahn (2004) administered both the SPQ and a facial affect recognition task, and found that positive schizotypy correlated with misclassifying angry faces as happy, and the subscale of unusual perceptual experiences correlated with misclassifying happy faces as angry or fearful. Other studies have extended these findings and observed that negative schizotypy is also related to deficits in facial affect (e.g., Abbott & Green, 2013; Williams, Henry, & Green, 2007).

However, some studies do not replicate deficits in classifying facial emotion (e.g., Jahshan & Sergi, 2007; Shean, Bell, & Cameron, 2007), but these null findings are potentially limited by the emotion perception tasks used, which may be insufficiently sensitive. Brown and Cohen (2010) sought to use a more sensitive measure of facial emotion perception that included neutral stimuli, and found that people with schizotypy were worse at identifying emotions than controls, more likely to misclassify neutral faces as showing disgust, and that there was a relation between disorganized schizotypy and a systematic bias for classifying faces with a negative emotional valence. Individuals with schizotypy also show deficits in facial recognition, as demonstrated by Larøi, D'Argembeau, Brédart, and van der Linden (2007), who found that people higher in schizotypy traits endorsed greater difficulty recognizing themselves, and others they know, and also show perceptual distortion of faces, in comparison with people low in schizotypy. These difficulties and distortions were associated with positive and disorganized, but not negative, schizotypy. In sum, evidence suggests that there is a facial affect recognition negativity bias in people with schizotypy, and that kinds of schizotypy may differentially misread various emotions, which may be driven by a lack of ability to integrate facial cues more broadly.

These results are replicated in studies on emotion recognition from vocal information. Although there are significantly fewer studies overall, they consistently show deficits in vocal affect recognition, the ability to recognize emotions from speech, in schizotypy samples (Castro & Pearson, 2011), as well as in individuals diagnosed with schizotypal personality disorder (Baum & Nowicki, 1998; Wickline, Nowicki, Bollini, & Walker, 2012), and at ultra-high risk for psychosis (Amminger et al., 2012). One study partially extended this finding, with the specification that positive (particularly cognitive-perceptual) schizotypy was negatively related to vocal emotion recognition accuracy (Shean et al., 2007). Taken together, these studies and the studies of facial affect recognition show a deficit in social perception in schizotypy that mirrors the results of similar studies conducted in schizophrenia (Kohler et al., 2003; Tseng et al., 2013).

Some researchers have reported a negative correlation between ability to identify happy emotions and both negative and positive symptoms (Tseng et al., 2013). In contrast, Kohler et al. (2003) observed that facial affect recognition in schizophrenia was worse relative to controls for fearful, disgusted, and neutral faces, but not for happy or angry faces, and worse performance was connected specifically to negative symptoms. Similar to facial emotion recognition, there is a pattern of general deficit in social perception, but mixed results at the level of what kinds of perceptions are most difficult, and which symptom profiles are most closely connected.

Conclusion

Our knowledge of social perception was once limited to its downstream consequences, such as how categorization and perception influence stereotyping and behavior.^{40,152} The past decade has seen unprecedented progress in unveiling the processes underlying initial percepts. Such progress has been driven by an equally unprecedented integration between disciplines, including the anticipated wedding of social-cognitive and neural sciences,¹⁶²⁻¹⁶⁴ as well as social-cognitive and visual sciences.^{1,2,165}

Together, these perspectives have engendered productive theoretical accounts of social perception³⁶ and have galvanized research into its basis across levels of analysis. In this chapter, we have focused on the top-down influences in social perception, and importantly, the interesting and nuanced ways in which they interact with different levels of processing. Specifically, we have reviewed neuroscience research into top-down influences in social vision, a parsimonious account of these influences from the vision and neural sciences, and have discussed how these areas may inform one another and fit within current computational frameworks. We hope the current direction of this research forges a productive collaboration that informs each of the social, cognitive, and neural sciences.

COMMUNICATION AND PERCEPTION

Think back to the first day of classes. Did you plan ahead for what you were going to wear? Did you get the typical school supplies together? Did you try to find your classrooms ahead of time or look for the syllabus online? Did you look up your professors on an online professor evaluation site? Based on your answers to these questions, I could form an impression of who you are as a student. But would that perception be accurate? Would it match up with how you see yourself as a student? And perception, of course, is a two-way street. You also formed impressions about your professors based on their appearance, dress, organization, intelligence, and approachability. As a professor who teaches others how to teach, I instruct my student-teachers to really take the first day of class seriously. The impressions that both teacher and student make on the first day help set the tone for the rest of the semester.

As we go through our daily lives we perceive all sorts of people and objects, and we often make sense of these perceptions by using previous experiences to help filter and organize the information we take in. Sometimes we encounter new or contradictory information that changes the way we think about a person, group, or object. The perceptions that we make of others and that others make of us affect how we communicate and act. In this chapter, we will learn about the perception process, how we perceive others, how we perceive and present ourselves, and how we can improve our perceptions.

Perception is the process of selecting, organizing, and interpreting information. includes the

perception of select stimuli that pass throughour perceptual filters, are organized into our existing structures and patterns, and are then interpreted based on previous experiences. Although perception is a largely cognitive and psychological process, how we perceive the people and objects around us affects our communication. We respond differently to an object or person that we perceive favorably than we do to something we find unfavorable. But how do we filter through the mass amounts of incoming information, organize it, and make meaning from what makes it through our perceptual filters and into our social realities?

SELECTING INFORMATION

We take in information through all five of our senses, but our perceptual field (the world around us) includes so many stimuli that it impossible for our brains to process and make sense of it all. So, as information comes in through our senses, various factors influence what actually continues on through the perception process. Susan T. Fiske and Shelley E. Taylor, *Social Cognition*, 2nd ed. (New York, NY: McGraw Hill, 1991).

Selecting is the first part of the perception process, in which we focus our attention on certain incoming sensory information. Think about how, out of many other possible stimuli to pay attention to, you may hear a familiar voice in the hallway, see a pair of shoes you want to buy from across the mall, or smell something cooking for dinner when you get home from work.

VISUAL AND AURAL STIMULATION

It is probably not surprising to learn that visually and/or aurally stimulating things become salient in our perceptual field and get our attention. Creatures ranging from fish to hummingbirds are attracted to things like silver spinners on fishing poles or red and yellow bird feeders. Having our senses stimulated isn't always a positive thing though. Think about the couple that won't stop talking during the movie or the upstairs neighbor whose subwoofer shakes your ceiling at night. In short, stimuli can be attention-getting in a productive or distracting way. As communicators, we can use this knowledge to our benefit by minimizing distractions when we have something important to say. It's probably better to have a serious conversation with a significant other in a quiet place rather than a crowded food court.

As we will learn later altering the rate, volume, and pitch of your voice, known as vocal variety, can help keep your audience engaged, as can gestures and movement. Conversely, nonverbal adaptors, or nervous movements we do to relieve anxiety like pacing or twirling our hair, can be distracting. Aside from minimizing distractions and delivering our messages enthusiastically, the content of our communication also affects salience.

NEEDS AND INTERESTS

We tend to pay attention to information that we perceive to meet our needs or interests in some way. This type of selective attention can help us meet instrumental needs and get things done. When you need to speak with a financial aid officer about your scholarships and loans, you sit in the waiting room and listen for your name to be called. Paying close attention to whose name is called means you can be ready to start your meeting and hopefully get your business handled.

When we don't think certain messages meet our needs, stimuli that would normally get our attention may be completely lost. Imagine you are in the grocery store and you hear someone say your name.

You turnaround, only to hear that person say, "Finally! I said your name three times. I thought you forgot who I was!" A few seconds before, when you were focused on figuring out which kind of orange juice to get, you were attending to the various pulp options to the point that you tuned other stimuli out, even something as familiar as the sound of someone calling your name.

Again, as communicators, especially in persuasive contexts, we can use this to our advantage by making it clear how our message or proposition meets the needs of our audience members. Whether a sign helps us find the nearest gas station, the sound of a ringtone helps us find our missing cell phone, or a speaker tells us how avoiding processed foods will improve our health, we select and attend to information that meets our needs.

Expectation

The relationship between salience and expectations is a little more complex. Basically, we can find expected things salient and find things that are unexpected salient. While this may sound confusing, a couple examples should illustrate this point. If you are expecting a package to be delivered, you might pick up on the slightest noise of a truck engine or someone's footsteps approaching your front door. Since we expect something to happen, we may be extra tuned in to clues that it is coming. In terms of the unexpected, if you have a shy and soft-spoken friend who you overhear raising the volume and pitch of his voice while talking to another friend, you may pick up on that and assume that something out of the ordinary is going on. For something unexpected to become salient, it has to reach a certain threshold of difference.

If you walked into your regular class and there were one or two more students there than normal, you may not even notice. If you walked into your class and there was someone dressed up as a wizard, you would probably notice. So, if we expect to experience something out of the routine, like a package delivery, we will find stimuli related to that expectation salient. If we experience something that we weren't expecting and that is significantly different from our routine experiences, then we will likely find it salient. We can also apply this concept to our communication. I always encourage my students to include supporting material in their speeches that defies our expectations. You can help keep your audience engaged by employing good research skills to find such information. There is a middle area where slight deviations from routine experiences may go unnoticed because we aren't expecting them. To go back to the earlier example, if you aren't expecting a package, and you regularly hear vehicle engines and sidewalk foot traffic outside your house, those pretty routine sounds wouldn't be as likely to catch your attention, even if it were slightly more or less traffic than expected. This is because our expectations are often based on previous experience and patterns we have observed and internalized, which allows our brains to go on "autopilot" sometimes and fill in things that are missing or overlook extra things. Look at the following sentence and read it aloud: Percpetoin is bsaed on pateetrns, maening we often raech a cocnlsuion wituht cosnidreing ecah indiidaul elmenet.

This example illustrates a test of our expectation and an annoyance to every college student. We have all had the experience of getting a paper back with typos and spelling errors circled. This can be frustrating, especially if we actually took the time to proofread. When we first learned to read and write, we learned letter by letter. A teacher or parent would show us a card with A-P-P-L-E written on it, and we would sound it out.

Over time, we learned the patterns of letters and sounds and could see combinations of letters and

pronounce the word quickly. Since we know what to expect when we see a certain pattern of letters, and know what comes next in a sentence since we wrote the paper, we don't take the time to look at each letter as we proofread. This can lead us to overlook common typos and spelling errors, even if we proofread something multiple times. As a side note, I'll share two tips to help you avoid proofreading errors: First, have a friend proofread your paper. Since they didn't write it, they have fewer expectations regarding the content. Second, read your papers backward. Since patterns of speech aren't the same in reverse you have to stop and focus on each word. Now that we know how we select stimuli, let's turn our attention to how we organize the information we receive.

ORGANIZING INFORMATION

Organizing is the second part of the perception process, in which we sort and categorize information that we perceive based on innate and learned cognitive patterns. Three ways we sort things into patterns are by using proximity, similarity, and difference. Stanley Coren, "Principles of Perceptual Organization and Spatial Distortion: The Gestalt Illusions," *Journal of Experimental Psychology: Human Perception and Performance* 6, no. 3 (1980): 404–12. In terms of proximity, we tend to think that things that are close together go together. For example, have you ever been waiting to be helped in a business and the clerk assumes that you and the person standing beside you are together?

The slightly awkward moment usually ends when you and the other person in line look at each other, then back at the clerk, and one of you explains that you are not together. Even though you may have never met that other person in your life, the clerk used a basic perceptual organizing cue to group you together because you were standing in proximity to one another.

Social prescribing

Social prescribing is about expanding the range of options available to GP and patient as they grapple with a problem. Where that problem has its origins in socioeconomic deprivation or long-term psychosocial issues, it is easy for both patient and GP to feel overwhelmed and reluctant to open what could turn out to be a can of worms. Settling for a short-term medical fix may be pragmatic but can easily become a conspiracy of silence which confirms the underlying sense of defeat. Can or should we try to do more during the precious minutes of a GP consultation?

Where there are psychosocial issues GPs do suggest social avenues, such as visiting a Citizens Advice Bureau for financial problems, or a dance class for exercise and loneliness, but without a supportive framework this tends to be a token action. The big picture difficulty with leaving underlying psychosocial problems largely hidden in the consulting room is the medicalisation of society's ills. This ranges from using antidepressants for the misery of a difficult life, to the complex pharmaceutical regimes prescribed to patients with obesity and type 2 diabetes. This sort of medicalisation may help immediate problems (including driving the economy through jobs in the healthcare industries) but it is not enough if our society is to have a sustainable future.

Another way of looking at this is in terms of choice. The consumerist type of choice of provider beloved of the government, is what Canadian philosopher Charles Taylor calls 'weak evaluation'.¹ By this he means a utilitarian 'weighing-up' of generally short-term consequences of a choice. These choices represent 'second-order desires', such as to feel more cheerful, or to relieve a pain, or to have a good experience of hospitalisation. These do not involve the 'worth' of an action, but rather its expediency in terms of immediate outcome. Strong evaluations involve deeper values and

address first-order desires. In the present context, whether to grapple with a difficult psychosocial issue requires a strong evaluation because it is about the first-order desires of giving meaning to life, developing your potential as a person, and contributing to society.

SOCIAL PRESCRIBING?

As we have already said, social prescribing aims to expand the options available in a primary care consultation. This expansion is in the direction of strong choices – options that make available new life opportunities that can add meaning, form new relationships, or give the patient a chance to take responsibility or be creative. Usually these services need to be available locally and often within the voluntary, community, and social enterprise sector ('third sector'). Familiar examples are voluntary work agencies, further education, libraries social or lunch clubs, self-help groups, befriending organisations, hobby clubs, horticulture, sports clubs, nature conservation, book groups, art or dance classes – there is a huge array.

The multiplicity of options is one of the key challenges. The idea is simple but the reality is complex. How can busy GPs and others in primary care know what is available? How is it done? You can't write it on an NHS prescription.

THE PROCESS OF MAKING A SOCIAL PRESCRIPTION?

There are logistic challenges in making social prescribing work. Keeping track of the NHS is hard enough and community groups come and go even faster than statutory ones. Also, patients who are simply given information about an opportunity will not necessarily take it up without some hand-holding.

A workshop hosted by Bromley Primary Care Trust in 2002 ('Social prescribing: making it happen in Bromley') defined six models for overcoming these challenges. The most favoured among existing schemes involves the use of a 'facilitator' (or referral agent or navigator) coupled with personal support (often a volunteer) for the patient in actually taking up social opportunities.³⁻⁵ The facilitator is employed to act as a bridge between primary care professionals and the panoply of social opportunities. It is a challenging role requiring good listening skills and the ability to relate in an inspiring way to health professionals, the wide variety of people in the third sector and, of course, the patient who has been referred. There must also be a regularly updated and accessible database of opportunities.

In all cases, social prescribing is a formal means of making links to locally accessible opportunities for patients. Where there is nothing appropriate (especially in rural areas) it can provide a framework for getting something started. Once the facilitator and supporting network is in place, making the 'prescription' is quick and easy.

BELIEF AND ATTITUDE CHANGE

Although belief and attitude changes often follow technological innovation, environmental or economic changes, theories regarding attitude change tend to focus on intentional efforts to change attitudes with the anticipation that attitudinal change will translate into behavioral change or action. With widespread access to mass media, efforts to influence and change beliefs and attitudes rose to a higher level of intensity. Beliefs and attitudes must be communicated if they are to become known to others or influence the behaviors or actions of others.

Theory-informed communication programs have evolved from a monologic, prescriptive focus on individual behavioral change to dialogic, participatory involvement in social change. Beliefs and attitudes do change, a fact which allows us to hold out hope that the world community will embrace a new attitude, the attitude that G.H. Mead termed the “social attitude,” which would allow us to cherish cultural diversity even as we nourish the moral imperative of our shared humanity.

Introduction Belief and attitude change cannot be studied fruitfully in isolation from the constellation of factors that contribute to their formation, maintenance and reformation. While individually held, beliefs and attitudes are, with few exceptions, collectively shared. Eras, cultures, societies, communities and individuals are, in part, defined by the beliefs they espouse and the attitudes they hold. Beliefs and attitudes are neither static nor immutable, but are spatially and temporally variable. Theological, philosophical, phenomenological and empirical interpretations all attest to the variability of beliefs and attitudes, and contribute to our understanding of those concepts. Given that beliefs and attitudes are subject to modification, permutation, even transformation, it is important to explore both the roots and the ramifications of belief and attitude change. Perhaps since the dawning of human self-consciousness, individuals and collectivities have sought to identify and understand the ultimate causes of events, the forces that constrain or enable processes that lead to change. Over the centuries, the primary cause of change has been attributed to metaphysical providence, natural determination or the inner logic of history. Even when exceptional individuals were considered agents of change, it was their genetic endowment or accidental propensities that were cited as the cause of their contributions. In these instances, uniqueness rather than shared human characteristics was considered primary. The predominant view, however, held extrahuman factors to cause change.

THE ATTITUDE CONSTRUCT

An attitude is a psychological tendency or mental predisposition that is expressed by evaluating an object or entity with some degree of like or dislike, favor or disfavor. Attitudes are affective, reflecting emotions or feelings attached to categories or objects (people, things, places, issues, ideas, etc.). At one time it was common to find a tripartite division of attitudes into cognition, affect, and conation. Cognition was discussed in the preceding section. Conation denotes a person’s behavioral or action-oriented intentions with respect to or in the presence of an object; that is, the desire or volition to achieve an end. Affect refers to a person’s feelings toward and evaluation of a given object.

While cognition, affect and conation are all subsumed under the rubric ‘attitude’ by some social psychologists, in this paper attitude will be used to refer exclusively to the affective dimension of mental constructs. As defined above, the statement “This law is unjust” reflects a belief. An accompanying attitude could be “I am neither in favor of nor in agreement with this law.” Consonant with the notion that attitudes are of a tripartite nature is the idea that attitudes have three different types of antecedents -- cognitive, affective, and behavioral. Theorists who favor a cognitive base for attitude formation assume that beliefs are formed about the attitude object through a cognitive learning process.

As people gain information about the attitude object, new or altered beliefs may result as a result of that exposure. If altered or new beliefs develop, they will be followed by changed attitudes. The cognitive basis for attitude change implies that beliefs and attitudes are formulated through the process of reasoning. In contrast, theories that postulate either affective or behavioral antecedents to attitude formation give precedence to stimuli-response mechanisms over cognitive mechanisms

in explaining this process.

For theorists who postulate an affective or emotional experience as the formative base for attitudes, as was true of early theoretical accounts of classical conditioning, attitude is a result of the pairing of an attitude object with a stimulus that elicits an emotional response. The third alternative is to posit consistency between prior behavior and attitudes, arguing that individuals will express attitudes consistent with their memory of past behavior.

This approach contends that individuals are reluctant to report attitudes inconsistent with their own behavior, unless behavior is thought to have been compelled by forces beyond the individual's control, in which case attitudes are less likely to change. Increasingly, theorists recognize that different - even multiple - mechanisms influence the wide range of beliefs and attitudes that individuals or collectivities hold, though cognitive theories have been in the ascendancy since the 1970s among social psychologists.

THE BASICS OF PROSOCIAL BEHAVIOR

Prosocial behaviors are those intended to help other people. Prosocial behavior is characterized by a concern for the rights, feelings, and welfare of other people. Behaviors that can be described as prosocial include feeling empathy and concern for others and behaving in ways to help or benefit other people.

In *The Handbook of Social Psychology*, C. Daniel Batson explains that prosocial behaviors refer to "a broad range of actions intended to benefit one or more people other than oneself—behaviors such as helping, comforting, sharing and cooperation."

The term prosocial behavior originated during the 1970s and was introduced by social scientists as an antonym for the term antisocial behavior.

What Motivates Prosocial Behavior?

Prosocial behavior has long posed a challenge to social scientists seeking to understand why people engage in helping behaviors that are beneficial to others, but costly to the individual performing the action. In some cases, people will even put their own lives at risk in order to help other people, even those that are complete strangers. Why would people do something that benefits someone else but offers no immediate benefit to the doer?

Psychologists suggest that there are a number of reasons why people engage in prosocial behavior. In many cases, such behaviors are fostered during childhood and adolescence as adults encourage children to share, act kindly, and help others.

Evolutionary psychologists often explain prosocial behaviors in terms of the principles of natural selection. Obviously, putting your own safety in danger makes it less likely that you will survive to pass on your own genes. However, the idea of kin selection suggests that helping members of your own genetic family makes it more likely that your kin will survive and pass on genes to the future generations. Researchers have been able to produce some evidence that people are often more likely to help those to whom they are closely related.

The norm of reciprocity suggests that when people do something helpful for someone else, that

person feels compelled to help out in return. Essentially, helping others means that they might help us in return. This norm developed, evolutionary psychologists suggest because people who understood that helping others might lead to reciprocal kindness were more likely to survive and reproduce.

Prosocial behaviors are often seen as being compelled by a number of factors including egoistic reasons (doing things to improve one's self- image), reciprocal benefits (doing something nice for someone so that they may one day return the favor), and more altruistic reasons (performing actions purely out of empathy for another individual).

Situational Influences on Prosocial Behavior

Characteristics of the situation can also have a powerful impact on whether or not people engage in prosocial actions. The bystander effect is one of the most notable examples of how the situation can impact helping behaviors. The bystander effect refers to the tendency for people to become less likely to assist a person in distress when there are a number of other people also present.

For example, if you drop your purse and several items fall out on the ground, the likelihood that someone will stop and help you decreases if there are many other people present. This same sort of thing can happen in cases where someone is in serious danger, such as when someone is involved in a car accident. In some cases, witnesses might assume that since there are so many other people present, someone else will have surely already called for help.

The tragic murder of a young woman named Kitty Genovese was what spurred much of the interest and research on the bystander effect. In 1964, Genovese was attacked as she neared her apartment on her way home from work late one night. She was stabbed and left lying on the sidewalk. She called for help and reports later indicated that many of her neighbors heard her cries yet did not call for help or attempt to interfere with the attack that lasted approximately 30 minutes. A neighbor eventually called police, but Genovese died before reaching the hospital.

The story generated considerable interest in the bystander effect and in understanding why people help in some situations but not in others, and experts have discovered a number of different situational variables that contribute to (and sometimes interfere with) prosocial behaviors.

- First, the more people that are present decreases the amount of personal responsibility people feel in a situation. This is known as the diffusion of responsibility.
- People also tend to look to others for how to respond in such situations, particularly if the event contains some level of ambiguity. If no one else seems to be reacting, then individuals become less likely to respond as well.
- Fear of being judged by other members of the group also plays a role. People sometimes fear leaping to assistance, only to discover that their help was unwanted or unwarranted. In order to avoid being judged by other bystanders, people simply take no action.

Latané and Darley have suggested that five key things must happen in order for a person to take action. An individual must:

1. Notice what is happening
2. Interpret the event as an emergency
3. Experience feelings of responsibility

4. Believe that they have the skills to help
5. Make a conscious choice to offer assistance

Other factors that can help people overcome the bystander effect including having a personal relationship with the individual in need, having the skills and knowledge to provide assistance, and having empathy for those in need.

Prosocial Behavior Versus Altruism

Altruism is sometimes seen as a form of prosocial behavior, but some experts suggest that there are actually different concepts. While prosocial behavior is seen as a type of helping behavior that ultimately confers some benefits to the self, altruism is viewed as a pure form of helping motivated purely out of concern for the individual in need

WHAT IS GROUP AND SOCIAL INFLUENCE [SOCIAL FACILITATION; SOCIAL LOAFING]; SOCIAL INFLUENCE [CONFORMITY, PEER PRESSURE, PERSUASION, COMPLIANCE, OBEDIENCE, SOCIAL POWER, REACTANCE]. AGGRESSION. GROUP DYNAMICS, LEADERSHIP STYLE AND EFFECTIVENESS. THEORIES OF INTERGROUP RELATIONS [MINIMAL GROUP EXPERIMENT AND SOCIAL IDENTITY THEORY, RELATIVE DEPRIVATION THEORY, REALISTIC CONFLICT THEORY, BALANCE THEORIES, EQUITY THEORY, SOCIAL EXCHANGE THEORY]?

GROUP AND SOCIAL INFLUENCE

Take-home Messages

- Social facilitation refers to the finding that people sometimes show an increased level of effort as a result of the real, imagined, or implied presence of others.
- The concept was first identified by Norman Triplett in 1898, when he noticed that cyclist's performance was facilitated (helped) when training as a group.
- Psychologist Floyd Allport labeled it social facilitation in 1920.
- There are two types of social facilitation: co-action effects and audience effect.
- Subsequent researchers found that performance improved as a result of the presence of others (social facilitation) whilst others found that it was impaired (social inhibition)
- Whether or not social facilitation occurs depends on the type of task: people tend to experience social facilitation when they are familiar with a task or for well-learned skills. However, social inhibition (decreased performance in the presence of others) occurs for difficult or novel tasks.
- Social facilitation is an improvement in the performance of a task in the presence of others (audience, competitor, co-actor) compared to their performance when alone.

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Perhaps the first social psychology laboratory experiment was undertaken in this area by Norman Triplett in 1898. In his research on the speed records of cyclists, he noticed that racing against each

other rather than against the clock alone increased the cyclists' speeds.

He attempted to duplicate this under laboratory conditions using children and fishing reels. There were two conditions: the child alone and children in pairs but working alone. Their task was to wind in a given amount of fishing line and Triplett reports that many children worked faster in the presence of a partner doing the same task. Triplett's experiments demonstrate the co-action effect:

Co-action effects: A co-action effect refers to a phenomenon whereby increased task performance comes about by the mere presence of others doing the same task. An example would be running a 100 meter sprint against someone.

The co-action effect may come into operation if you find that you work well in a library in preference to working at home where it is equally quiet (and so on).

Other co-action effect studies include Chen (1937) who observed that worker ants will dig more than three times as much sand per ant when working (non-co-operatively) alongside other ants than when working alone.

Platt, Yaksh and Darby (1967) found that animals will eat more of their food if there are others of their species present.

AUDIENCE EFFECTS

Social facilitation occurs not only in the presence of a co-actor but also in the presence of a passive spectator/audience. This is known as the audience effect.

Dashiell (1935) found that the presence of an audience facilitated subjects' multiplication performance by increasing the number of simple multiplications completed.

Audience effects: An audience effect refers to a type of social facilitation in which an individual's performance is influenced by the presence of others (an audience), which causes an individual's dominant response to occur.

Travis (1925) found that well-trained subjects were better at a psychomotor task (pursuit rotor) in front of spectators. However, Pessin (1933) found an opposite audience effect, namely that subjects needed fewer trials at learning a list of nonsense words when on their own than when in front of an audience.

It seems, then, that the extent of social facilitation or inhibition depends upon the nature of the interaction between the task and the performer.

In some cases, the presence of co-actors/audience improved the quality of performance (Dashiell 1935) but in others it impaired the quality (Pessin, 1933).

What sorts of behaviors are improved by the presence of others and what sorts impaired? Whether or not social facilitation occurs depends on the type of task: people tend to experience social facilitation when they are familiar with a task or for well-learned skills.

However, social inhibition (decreased performance in the presence of others) occurs for difficult or novel tasks.

Social facilitation is thought to involve three factors:

COGNITIVE FACTORS (DISTRACTION CONFLICT AND ATTENTION)

Distraction Conflict (Barron, 1986) theory of social facilitation suggests that rather than the mere presence of others, it is the conflict between giving attention to a person and giving attention to a task which affects performance.

This attention conflict motivates a person to pay more attention to the task and therefore will increase performance for simple well-learned tasks

AFFECTIVE FACTORS (ANXIETY OF BEING EVALUATED)

According to Cottrell (1968), it's not the presence of other people that is important for social facilitation to occur but the apprehension about being evaluated by them. We know that approval and disapproval are often dependent on others' evaluations and so the presence of others triggers an acquired arousal drive based on evaluation anxiety.

We are aroused by audiences because we have learned that they evaluate our performance, they are not merely passive spectators, we believe. Such performance evaluation apprehension enhances drive/arousal

PHYSIOLOGICAL FACTORS (DRIVE AND AROUSAL)

According to Zajonc, behavior that is either instinctive or very well-learned/ highly practiced is improved whereas behaviour that is novel or complex is impaired.

Zajonc's (1966) fundamental claim is that "an audience impairs the acquisition of new responses and facilitates the emission of well learned responses". His crucial theoretical contribution was that the presence of others enhances the emission of dominant responses.

Zajonc's explanation is based upon Clark Hull's theory of motivation which states that a high level of arousal/drive will result in what is now called stress and will produce habitual behaviors (which are often incorrect).

The presence of others adds to arousal and when combined with the arousal arising from a difficult or unfamiliar task results in stress and consequent poor performance.

The extra arousal contributed by the presence of others takes us past our optimum level of arousal and result in the dominant response being something we can do easily, not something which is new or demanding. This is supported by the Yerkes-Dodson theory of optimal arousal. A dominant response is simply the response that is most likely to occur in the presence of the given array of stimuli. If a task is easy for the person, then the dominant response will be the correct one (i.e. most likely) and so the audience/co-actor helps elicit this. In a difficult task, the dominant response is the incorrect one(s) (i.e. the most likely again) and so the audience/co-actor helps elicit this.

SOCIAL FACILITATION AND SOCIAL LOAFING

However, there are instances where the presence of others has the opposite effect. That is, sometimes we don't work as hard in the presence of others as we do when we are alone, especially if our behavior is not under surveillance. This phenomenon is known as social loafing.

Psychologists have spent decades studying the power of **social influence**, and the way in which it manipulates people's opinions and behavior. Specifically, social influence refers to the way in which individuals change their ideas and actions to meet the demands of a social group, perceived authority, social role or a minority within a group wielding influence over the majority.

Most of us encounter social influence in its many forms on a regular basis. For example, a student may alter his or her behavior to match that of other students in a class. The majority-held opinions of a group of friends are likely to inform the views of new members to that social group. Furthermore, we are influenced by the requests of people who are seen as holding positions of authority. For instance, an employee will follow the orders of his supervisors in order to please them.

Why people accept social influence

There are a number of reasons why people allow social influences to affect their thoughts and behavior.

One reason is that we often conform to the norms of a group to gain **acceptance** of its members. Supporters of a football team voluntarily wear shirts of their teams to feel a part of the group. Friends may also wear similar clothing to their peers to experience a sense of belonging and to emphasise their shared ideas.

Group conformity can also encourage **cooperation** when attempting to achieve a shared goal. When an individual is able to exhibit a minority influence over a wider group, he or she can persuade that group to work collectively. For example, charity organizers recruiting new volunteers advocate improving their community (e.g. litter picking) in a way that cannot be achieved as easily by just one person acting alone.

However, cooperation can lead to a conformity of views, resulting in a phenomenon known as **groupthink**. When this occurs, team members adopt agreed views and actions in the pursuit of a given goal, but reject criticism from individuals who oppose or question the group's behavior. This lack of critical thinking can have a negative impact on a group's performance as its ability to evaluate its own behavior and adapt to changing conditions is impeded.

Additionally, group conformity enables a sense of **cohesion** within a society. Laws prohibiting violence and theft help to protect every individual within a community. However, such laws depend on people conforming to the norms of the wider group by acting as law-abiding citizens.

Whilst social influence can have a positive effect on behavior, its disadvantages have been a motivating factor behind research into conformity by psychologists such as Stanley Milgram. Conformity to a narrow set of behaviors and views can discourage the nurturing of new ideas which could improve the lives of a group. It can discourage its members from questioning and debating the beliefs and held by the majority of a group and its practises. This behavior has been observed in cults, where members are often reluctant to doubt the group's authority publically for fear of being

rejected by their peers.

Another form of social influence - minority influence - has also been used historically for malign purposes. The followers of leaders such as Adolf Hitler accepted and often internalized the Nazi leader's fascist views without question.

Following the Second World War, German officer Adolf Eichmann attempted to justify his participation in the Holocaust by claiming that he was merely 'following the orders' of perceived authority figures: in Eichmann's case, his commanders.

People tend to conform for one of two reasons: to act based on a more informed view (informative social influence) or to match the views and behavior of a social group (normative social influence):

INFORMATIVE SOCIAL INFLUENCE (OR SOCIAL PROOF)

People feel the need to be informed by accurate information, and when they lack confidence in their own knowledge, they turn to others in the hope that they will provide them with the correct information. By accepting this information, regardless of whether it is accurate, the person is subjected to social influence.

Social psychologist Muzafer Sherif demonstrated informative social influence in an experiment using the autokinetic effect.

Sherif (1935) placed participants in a darkened room, then projected a single, stationary light onto the wall facing them. In accordance with the autokinetic effect, when a person is unable to see another object to judge the light's relative position, the light appears to move.

One group of participants was then asked individually how far the light had moved. Based on their own perception alone, they reported that the light had shifted widely **varying distances**.

A second group was also asked how far the light had moved, but gave their answers **in front of other members of the group**.

Sherif found that participants who gave their answers in a group provided varying distances, but that the reported movement eventually fell into an **ever-smaller range**. In other words, when participants were unsure of the light's movement and information was available from other members of the group, they used their answers to inform their own opinions, leading to **conformity** amongst participants.

NORMATIVE SOCIAL INFLUENCE

A second type of conformity is normative social influence. People want to 'fit in' amongst friends and colleagues, and to be liked and respected by other members of their social group. They value the opinions of other members, and seek to maintain their standing within the group. Therefore, individuals will adjust their own attitudes and behavior to match the accepted norms of the group. This conformity with the majority may involve following the fashion trends that are popular amongst a group of friends, adopting the rituals of a religious group or watching a particular TV show because classmates at college talk about it.

SOCIAL INFLUENCE AND CONFORMITY

Social influence takes a number of forms. One type of such influence is **conformity**, when a person adopts the opinions or behaviors of others. This often occurs in groups, when an individual conforms to the social norms respected by a majority of the group's members.

An individual may conform to the opinions and values of a group. They express support for views accepted by the group and will withhold criticism of **group norms**. **Behavioral conformity** can also influence a group member's actions: a person will behave in a way that is similar to others in the group.

PUBLIC-VERSUS-PRIVATE CONFORMITY

When conforming to the social norms of a group, a person may disagree with the opinions that they express or the actions that they take, but nonetheless, they adopt the behavior that is expected of them.

- **Public conformity** involves matching one's behavior to meet the expectations of others, whilst privately holding a different view. For example, a student may express a liking for a rock band because all of his friends listen to it. Privately, however, he may dislike their music, but conforms in front of his friends to gain their acceptance.
- **Private conformity** occurs when a person **internalizes** the views of a group, and adopts a majority opinion as his or her own. For instance, the student listens to the music of a rock band that his friends like. Over time, he realises that he too enjoys this type of music. As his **private opinion** has changed, private conformity has occurred.

ASCH'S CONFORMITY EXPERIMENTS

One of the most-cited researchers into conformity was the Polish psychologist Solomon Asch (1907-1996). In the 1950s, he carried out a series of experiments known as the **Asch Paradigms** to understand the circumstances which led to people conforming to a majority influence.

In an experiment at Swarthmore College, Asch (**Asch and Guetzkow, 1951**) presented participants with a printed line of a given length, and a series of additional lines of varying lengths. One of the lines was the same length as in the initial image, whilst the other two were significantly different. In a group setting, participants were then asked to individually report which of the lines was the same length as the first. They were unaware that other members of the group were confederates who, in some of the trials, had been instructed to answer that a line which was clearly of a different length matched that of the original line.

Participants were torn between two options: did they report the answer which they had observed to be obviously correct but contradict other members of the group? Or, should they disregard their private opinion and report the answer that other group members were reporting?

Using this experimental design, Asch discounted the potential for informative influence to affect participants' answers. As the matching line length was obvious, they had no need to refer to other group members' opinions.

Even when the correct answer was obvious, Asch found that participants would conform to the group norm and report obviously inaccurate answers.

Asch's studies showed that social influence can lead subjects to doubt their own knowledge when

it is contradicted by the majority of their group's members, or to exhibit public conformity and avoid questioning group norms

IDENTIFICATION

Kelman (1958) distinguished between 3 types of conformity, including **identification**.

This occurs when an individual identifies with other members of a group and conforms to its opinions and behaviors. In doing so, they may seek to gain the favor of other members and to be accepted into the group.

When identifying with a group, a person does not internalise its norms. When they leave the group, they may assume their own beliefs and behaviors.

For example, an employee joining an office may go bowling as colleagues on her team like to visit the bowling alley once a week. Privately, however, she may dislike the pastime and prefer to spend it reading at home.

INTERNALIZATION

Internalization is a form of **opinion conformity**, whereby the opinions of a group, or minority within that group influence an individual's own opinions. The person may not only express the views of the group publicly, but also adopts these new views and regards them as being his or her own - a form of **private conformity**.

The internalization of new beliefs frequently occurs in religious groups, when members privately adopt the spiritual ideas expressed by the authority figures (e.g. a priest or other spiritual leader) as their own personal beliefs.

COMPLIANCE

Another form of conformity is achieved through **compliance**. This involves a request that an individual or group complies with the instructions of another. Unlike internalization, compliance **does not require private conformity**, as a person may reluctantly comply with a request whilst privately doubting it.

Compliance frequently occurs when a person is asked by an authority figure to meet a particular set of demands. For example, drivers comply with the directions given by traffic wardens, and students comply with the requests of their teacher, who they view as holding a position of **authority**.

Compliance may be achieved using a number of techniques known as **compliance strategies**. These are often used by salespeople to persuade potential customers to fulfill their request to place orders.

Compliance strategies include the **foot-in-the-door technique**, which involves a person making a small initial request in order to gain compliance with another question. Once a person has complied with a request, they are more likely to agree to a later, more significant, request. For example, a car sales representative may ask a prospective customer to agree to test-drive a new car. If the person agrees, they may be able to persuade them to extend their compliance by accepting a later request to buy the car.

The **door-in-the-face technique** is another compliance strategy which takes an opposite approach. An unreasonably large request is made initially, followed by the request that the subject is expected to comply with. A person will almost certainly reject the first request, but the second appears more reasonable when compared to it, and so they may be more inclined to comply with the second proposition.

Read more about compliance strategies here [Obedience](#)

Obedience is a form of public conformity which occurs when a person modifies their behavior to obey the directions of another, often in a position of authority. It does not require a subject to alter his or her private opinion.

Hierarchical relationships often involve one party obeying the orders of another. For instance, a son is expected to obey his parents, a teacher directs students to behave in class and a soldier takes orders from a superior officer. In each instance, the person in a subordinate position obeys the other, often for fear of the consequences of disobeying them.

In 1961, as the Nuremberg trials were taking place in Israel, the Nazi Adolf Eichmann gave testimony in his defense that he was merely following the orders of higher-ranking officials when he carried out war crimes leading to the Holocaust. American psychologist Stanley Milgram questioned how such people could obey the directions of others when such actions would lead to such atrocities.

Milgram (1963) conducted an experiment in which participants played the role of 'teacher'.

One participant, a confederate, was asked to learn a set of word pairs and the teacher would test his knowledge of these pairs. They were placed in adjacent rooms and the teacher was positioned in front of a set of controls to administer electric shocks to the learner. The teacher was instructed to punish the learner with a shock after each incorrect he gave (they were unaware that their compliance would not result in an actual shock to the confederate, who enacted responses to the punishments).

Milgram tested participants' willingness to obey by instructing the experimenters to administer higher shocks. When they displayed reluctance to injure the learner, further encouragement to continue the procedure were given.

The study found that all of the participants obeyed the order to shock the learner, but to varying degrees. His findings suggest that obedience to perceived authority figures can take precedence over one's own morals, and that **situational factors**, such as the setting participants found themselves in, can influence behavior even when **personality factors** (e.g. moral objections) oppose it.

Milgram (1974) proposed **agency theory** to explain the tendency to obey authority. He suggested that an individual may be in one of two states at any one time:

1. **Autonomous state** - when an individual's behavior is determined by his or her own independent beliefs and responsibility is taken for such actions. When a person regrets their actions, they experience feelings of guilt.
2. **Agentic state** - a person perceives another as being in a position of authority. They obey orders issued by the authority figure, acting as an 'agent' on their behalf. When this behavior is perceived to be a mistake, the person attributes responsibility to the authority that ordered it, rather than feeling guilt for their role in it.

When a person feels that an authority will take responsibility for the actions that they ask them to carry out, Miller believed that an **agentic shift** can occur from an autonomous to an agentic state.

FACTORS AFFECTING CONFORMITY

Conformity rates within a group vary depending upon a number of factors

The **size of a majority** can affect conformity rates within a group. **Asch (1956)** tested conformity rates whilst varying the number of confederates taking a common position. He found that conformity increased in line with the size of the majority, but that the most substantial increases occurred as the majority increased from 1 to 3.

Additionally, Asch found that group consensus and objecting members can affect conformity. **Unanimity** of opinion amongst members increased conformity, whilst dissenting voices encouraged other members to behave independently.

Cultural differences can also influence conformity. **Bond and Smith (1996)** found a correlation between conformity levels and societal attitudes in terms of **individualism-collectivism**. Conformity levels have been found to be lower in cultures where **individualism** is valued (particularly in Western countries such as the UK and US). In collectivist cultures, where individuals are expected to behave and work in a way that benefits society as a whole, conformity is often higher.

Furthermore, **task difficulty** can affect the extent to which an individual will consult the majority-held opinion when completing an activity. **Lucas et al (2006)** found that individuals' reduced confidence in one's own abilities to succeed at a task, or low self-efficacy, can increase his or her conformity.

SOCIAL ROLES

A further form of social influence is the **roles** in which people find themselves. Each role is associated with a set of attitudes and forms of behavior, and the role that a person is assigned can influence their actions and opinions.

Most of us are influenced by a number of roles at any one time. You may play a **professional role** - from doctor to wait-staff, naval officer to writer. Each profession is associated with different types of behavior. For example, people expect a doctor or naval officer to be more serious than a circus entertainer, and may try to fulfill this assumption when given a particular professional role. Other types of role, such as **gender, family** and **societal roles**, can also influence behavior.

Zimbardo et al (1973) conducted a well-known study to examine how social roles influence behavior. In the **Stanford prison experiment**, participants were assigned the role of either prisoner or prison officer, and were asked to play out their roles in a mock prison which Zimbardo had built in the basement of Stanford University, complete with cells for subjects.

During the study, Zimbardo himself assumed the role of prison officer in order to observe the behavior of participants.

He found that the behavior of those assigned to act as prison officers rapidly changed to meet their perceptions of the role. They would punish prisoners by asking them to perform push-ups and in one incident, sprayed a fire extinguisher in an attempt to quell a rebellion.

Similarly, prisoners themselves adopted a subservient role to the officers, treating them as authority figures and reporting on the 'misbehavior' of fellow prisoners.

Zimbardo found that assigned social roles led participants to behave in a way that they would not normally. Having eliminated participants from the experiment who were likely to behave in an offensive manner, he concluded that it was people's preconceptions of their assigned roles and the **experimental situation** in which they found themselves that influenced their actions.

Minority Influence

Whilst conformity usually occurs in response to the norms of a majority - other members in a social group - individuals or minorities of a group can also exhibit social influence. This is known as **minority influence**.

Minority influence occurs when an individual presents an opinion that is different to that held by the majority. As this opinion is novel and contrary to group norms, the attention of other members' is drawn to it, and they are led to consider the merits of the minority opinion.

As minority influence runs against the accepted beliefs of a group, it cannot rely upon normative influence to lead other members to comply: individuals tend towards a majority-held view to feel as though they are part of a group. Instead, a minority view usually needs to exert **informative influence**. By presenting new information (e.g. a key fact) as having been overlooked by the majority, a minority can persuade other members to reconsider their opinion. This process is known as **conversion**. If a minority influence is able to convert a sufficient number of members, the view will eventually become the opinion held by a majority of individuals within the group.

Many social and political movements, such as the civil rights movement in the United States, use minority influence to change the views of the wider population.

Minority influence is more effective when the person expressing the view displays **consistency**: **Moscovici et al (1969)** conducted an experiment in which a group was asked to identify the color shown on a series of slides. When a minority of confederates within the group consistently answered that slides were 'green', other participants were more likely to be influenced when giving their own answers than when the confederates were inconsistent in their responses.

SOCIAL LOAFING

Social loafing describes the tendency of individuals to put forth less effort when they are part of a group. Because all members of the group are pooling their effort to achieve a common goal, each member of the group contributes less than they would if they were individually responsible.¹

Overview

Imagine that your teacher assigned you to work on a class project with a group of 10 other students. If you were working on your own, you would have broken down the assignment into steps and started work right away. Since you are part of a group, however, the social loafing tendency makes it likely that you would put less effort into the project. Instead of assuming responsibility for certain tasks, you might just think that another group member will take care of it.

Or in some cases, the other members of your group assume that someone else will take care of their share of the work, and you end up getting stuck doing the entire assignment yourself.

Ringelmann's Rope-Pulling Experiments

One of the first experiments in social loafing was conducted by French agricultural engineer, Max Ringelmann in 1913.¹

He asked participants to pull on a rope both alone and in groups. He found that when people were part of a group, they made less of an effort to pull the rope than they did when working individually. A group of researchers replicated Ringelmann's experiment in 1974, with a few small changes.²

The first group was consistent with Ringelmann's original study and contained small groups of participants. The second panel consisted of only one real participant; the rest were confederates who merely pretended to pull the rope.

The researchers found that the groups containing all real participants experienced the largest declines in performance, suggesting the losses were linked to motivational factors rather than group coordination problems.

A 2005 study found that group size can have a powerful impact on group performance.³ In the study, half of the groups consisted of four people while the other half consisted of eight. Some groups worked at a table together, while distributed groups worked on the same problem communicating only through computers.

The researchers found that people exerted greater individual effort when they were in smaller groups in both the distributed and collocated situations. When placed in collocated groups, however, people felt greater pressure to look busy even when they were not, while those in the distributed groups were less likely to feel such pressure.

How Does Group Size Influence Problem Solving? Causes

If you have ever worked as part of a group toward a larger goal, then you have undoubtedly experienced this psychological phenomenon firsthand. And if you've ever led a group, then you have likely felt frustration at the lack of effort that group members sometimes put forth. Why does this sometimes aggravating malingering happen?

Psychologists have come up with a few possible explanations.¹

Motivation (or lack thereof): This can play an important role in determining whether social loafing takes place. People who are less motivated by a task are more likely to engage in social loafing when they are part of a group.

- **Diffusion of responsibility:** People are more likely to engage in social loafing if they feel less personally accountable for a task, and know their individual efforts have little impact on the overall outcome. This is often used to explain the bystander effect, or the tendency to be less likely to help a person in need when others are present.
- **Group size:** In small groups, people are more likely to feel their efforts are more important and will, therefore, contribute more. The larger the group, however, the less individual effort people will exert.
- **Expectations:** If you expect other people to slack off, you probably will as well since you don't

want to get stuck doing all of the work. On the other hand, if you are in a group of high-achievers who seem to be in control of everything, you might also be more likely to kick back and let them handle all the work.

HOW TO REDUCE SOCIAL LOAFING

Social loafing can have a serious impact on group performance and efficiency. However, there are some things that can be done to minimize the effects of social loafing.¹

- Assigning individual tasks and responsibilities
- Creating small groups and establishing individual accountability can help.
- Establishing clear standards and rules
- Evaluating individual and group performance
- Highlighting the achievements of individual member

CONFORMITY

Conformity is a type of social influence involving a change in belief or behavior in order to fit in with a group.

This change is in response to real (involving the physical presence of others) or imagined (involving the pressure of social norms / expectations) group pressure.

Conformity can also be simply defined as “yielding to group pressures” (Crutchfield, 1955). Group pressure may take different forms, for example bullying, persuasion, teasing, criticism, etc. Conformity is also known as majority influence (or group pressure).

The term conformity is often used to indicate an agreement to the majority position, brought about either by a desire to ‘fit in’ or be liked (normative) or because of a desire to be correct (informational), or simply to conform to a social role (identification).

Jenness (1932) was the first psychologist to study conformity. His experiment was an ambiguous situation involving a glass bottle filled with beans.

He asked participants individually to estimate how many beans the bottle contained. Jenness then put the group in a room with the bottle, and asked them to provide a group estimate through discussion.

Participants were then asked to estimate the number on their own again to find whether their initial estimates had altered based on the influence of the majority.

Jenness then interviewed the participants individually again, and asked if they would like to change their original estimates, or stay with the group's estimate. Almost all changed their individual guesses to be closer to the group estimate. However, perhaps the most famous conformity experiment was by Solomon Asch (1951) and his line judgment experiment.

Types of Conformity

Kelman (1958) distinguished between three different types of conformity:

Compliance (or group acceptance)

This occurs 'when an individual accepts influence because he hopes to achieve a favorable reaction from another person or group. He adopts the induced behavior because....he expects to gain specific rewards or approval and avoid specific punishment or disapproval by conformity' (Kelman, 1958, p. 53).

In other words, conforming to the majority (publicly), in spite of not really agreeing with them (privately). This is seen in Asch's line experiment.

Compliance stops when there are no group pressures to conform, and is therefore a temporary behavior change.

Internalization (genuine acceptance of group norms)

This occurs 'when an individual accepts influence because the content of the induced behavior - the ideas and actions of which it is composed - is intrinsically rewarding. He adopts the induced behavior because it is congruent [consistent] with his value system' (Kelman, 1958, p. 53).

Internalization always involves public and private conformity. A person publicly changes their behavior to fit in with the group, while also agreeing with them privately.

This is the deepest level of conformity where the beliefs of the group become part of the individual's own belief system. This means the change in behavior is permanent. This is seen in Sherif's autokinetic experiment.

This is most likely to occur when the majority have greater knowledge, and members of the minority have little knowledge to challenge the majority position.

IDENTIFICATION (OR GROUP MEMBERSHIP)

This occurs 'when an individual accepts influence because he wants to establish or maintain a satisfying self-defining relationship to another person or group' (Kelman, 1958, p. 53).

Individuals conform to the expectations of a social role, e.g. nurses, police officers. It is similar to compliance as there does not have to be a change in private opinion. A good example is Zimbardo's Prison Study.

Man (1969) identified an additional type of conformity: **Ingratiation**

This is when a person conforms to impress or gain favor/acceptance from other people.

It is similar to normative influence, but is motivated by the need for social rewards rather than the threat of rejection, i.e., group pressure does not enter the decision to conform.

EXPLANATIONS OF CONFORMITY

Deutsch and Gerrard (1955) identified two reasons why people conform:

Normative Conformity

- Yielding to group pressure because a person wants to fit in with the group. E.g. Asch Line Study.
- Conforming because the person is scared of being rejected by the group.
- This type of conformity usually involves compliance – where a person publicly accepts the views of a group but privately rejects them.

INFORMATIONAL CONFORMITY

- This usually occurs when a person lacks knowledge and looks to the group for guidance.

- Or when a person is in an ambiguous (i.e. unclear) situation and socially compares their behavior with the group. E.g. Sherif's Study.
- This type of conformity usually involves internalization – where a person accepts the views of the groups and adopts them as an individual.

SHERIF (1935) AUTOKINETIC EFFECT EXPERIMENT

Aim: Sherif (1935) conducted an experiment with the aim of demonstrating that people conform to group norms when they are put in an ambiguous (i.e. unclear) situation.

Method: Sherif used a lab experiment to study conformity. He used the autokinetic effect – this is where a small spot of light (projected onto a screen) in a dark room will appear to move, even though it is still (i.e. it is a visual illusion).

It was discovered that when participants were individually tested their estimates on how far the light moved varied considerably (e.g. from 20cm to 80cm) The participants were then tested in groups of three. Sherif manipulated the composition of the group by putting together two people whose estimate of the light movement when alone was very similar, and one person whose estimate was very different. Each person in the group had to say aloud how far they thought the light had moved.

Results: Sherif found that over numerous estimates (trials) of the movement of light, the group converged to a common estimate. The person whose estimate of movement was greatly different to the other two in the group conformed to the view of the other two.

Sherif said that this showed that people would always tend to conform. Rather than make individual judgments they tend to come to a group agreement.

Conclusion: The results show that when in an ambiguous situation (such as the autokinetic effect), a person will look to others (who know more / better) for guidance (i.e. adopt the group norm). They want to do the right thing, but may lack the appropriate information. Observing others can provide this information. This is known as informational conformity.

NON CONFORMITY

Not everyone conforms to social pressure. Indeed, there are many factors that contribute to an individual's desire to remain independent of the group.

For example, Smith and Bond (1998) discovered cultural differences in conformity between western and eastern countries. People from Western cultures (such as America and the UK) are more likely to be individualistic and don't want to be seen as being the same as everyone else. This means that they value being independent and self sufficient (the individual is more important than the group), and as such are more likely to participate in non conformity.

In contrast, eastern cultures (such as Asian countries) are more likely to value the needs of the family and other social groups before their own. They are known as collectivist cultures and are more likely to conform.

PEER PRESSURE

Heart pounding, Leah leaned against the store's unattended makeup display and slid two tubes of lipstick into her purse. She looked bored and detached as she followed her friends Suki and Jill out of the store, but inside she felt panicked.

"I can't believe you made me do that," Leah wailed.

"Relax," said Jill. "Everybody does it sometimes. And we didn't make you do it."

She said nothing, but Leah knew she wouldn't have done that on her own. She'd just had a big dose of peer pressure.

WHO ARE YOUR PEERS?

When you were a little kid, your parents usually chose your friends, putting you in play groups or arranging play dates with certain children they knew and liked. Now that you're older, you decide who your friends are and what groups you spend time with.

Your friends — your peers — are people your age or close to it who have experiences and interests similar to yours. You and your friends make dozens of decisions every day, and you influence each other's choices and behaviors. This is often positive — it's human nature to listen to and learn from other people in your age group.

As you become more independent, your peers naturally play a greater role in your life. As school and other activities take you away from home, you may spend more time with peers than you do with your parents and siblings. You'll probably develop close friendships with some of your peers, and you may feel so connected to them that they are like an extended family.

Besides close friends, your peers include other kids you know who are the same age — like people in your grade, church, sports team, or community. These peers also influence you by the way they dress and act, things they're involved in, and the attitudes they show.

It's natural for people to identify with and compare themselves to their peers as they consider how they wish to be (or think they should be), or what they want to achieve. People are influenced by peers because they want to fit in, be like peers they admire, do what others are doing, or have what others have.

PEER INFLUENCE ISN'T ALL BAD

You already know that the teen years can be tough. You're figuring out who you are, what you believe, what you're good at, what your responsibilities are, and what your place in the world is going to be. It's comforting to face those challenges with friends who are into the same things that you are. But you probably hear adults — parents, teachers, guidance counselors, etc. — talk about peer pressure more than the benefits of belonging to a peer group.

You might not hear a lot about it, but peers have a profoundly positive influence on each other and play important roles in each other's lives

- **Friendship.** Among peers you can find friendship and acceptance, and share experiences that can build lasting bonds.
- **Positive examples.** Peers set plenty of good examples for each other. Having peers who are committed to doing well in school or to doing their best in a sport can influence you to be more goal-oriented, too. Peers who are kind and loyal influence you to build these qualities in yourself. Even peers you've never met can be role models! For example, watching someone your age compete in the Olympics, give a piano concert, or spearhead a community project might inspire you to go after a dream of your own.

- **Feedback and advice.** Your friends listen and give you feedback as you try out new ideas, explore belief, and discuss problems. Peers can help you make decisions, too: what courses to take; whether to get your hair cut, let it grow, or dye it; how to handle a family argument. Peers often give each other good advice. Your friends will be quick to tell you when they think you're making a mistake or doing something risky.
- **Socializing.** Your peer group gives you opportunities to try out new social skills. Getting to know lots of different people – such as classmates or teammates – gives you a chance to learn how to expand your circle of friends, build relationships, and work out differences. You may have peers you agree or disagree with, compete with, or team with, peers you admire, and peers you don't want to be like.
- **Encouragement.** Peers encourage you to work hard to get the solo in the concert, help you study, listen and support you when you're upset or troubled, and empathize with you when they've experienced similar difficulties
- **New experiences.** Your peers might get you involved in clubs, sports, or religious groups. Your world would be far less rich without peers to encourage you try sushi for the first time, listen to a CD you've never heard before, or to offer moral support when you audition for the school play.

WHEN THE PRESSURE'S ON

Sometimes, though, the stresses in your life can actually come from your peers. They may pressure you into doing something you're uncomfortable with, such as shoplifting, doing drugs or drinking, taking dangerous risks when driving a car, or having sex before you feel ready.

This pressure may be expressed openly ("Oh, come on – it's just one beer, and everyone else is having one") or more indirectly – simply making beer available at a party, for instance.

Most peer pressure is less easy to define. Sometimes a group can make subtle signals without saying anything at all – letting you know that you must dress or talk a certain way or adopt particular attitudes toward school, other students, parents, and teachers in order to win acceptance and approval.

The pressure to conform (to do what others are doing) can be powerful and hard to resist. A person might feel pressure to do something just because others are doing it (or say they are). Peer pressure can influence a person to do something that is relatively harmless – or something that has more serious consequences. Giving in to the pressure to dress a certain way is one thing – going along with the crowd to drink or smoke is another.

People may feel pressure to conform so they fit in or are accepted, or so they don't feel awkward or uncomfortable. When people are unsure of what to do in a social situation, they naturally look to others for cues about what is and isn't acceptable.

The people who are most easily influenced will follow someone else's lead first. Then others may go along, too – so it can be easy to think, "It must be OK. Everyone else is doing it. They must know what they're doing." Before you know it, many people are going along with the crowd – perhaps on something they might not otherwise do.

Responding to peer pressure is part of human nature – but some people are more likely to give in, and others are better able to resist and stand their ground. People who are low on confidence and

those who tend to follow rather than lead could be more likely to seek their peers' approval by giving in to a risky challenge or suggestion. People who are unsure of themselves, new to the group, or inexperienced with peer pressure may also be more likely to give in.

Using alcohol or drugs increases anyone's chances of giving in to peer pressure. Substance use impairs judgment and interferes with the ability to make good decisions.

PRESSURE POINTERS

Nearly everyone ends up in a sticky peer pressure situation at some point. No matter how wisely you choose your friends, or how well you think you know them, sooner or later you'll have to make decisions that are difficult and could be unpopular. It may be something as simple as resisting the pressure to spend your hard-earned babysitting money on the latest MP3 player that "everybody" has. Or it may mean deciding to take a stand that makes you look uncool to your group.

But these situations can be opportunities to figure out what is right for you. There's no magic to standing up to peer pressure, but it does take courage – yours

- Listen to your gut. If you feel uncomfortable, even if your friends seem to be OK with what's going on, it means that something about the situation is wrong for you. This kind of decision-making is part of becoming self-reliant and learning more about who you are.
- Plan for possible pressure situations. If you'd like to go to a party but you believe you may be offered alcohol or drugs there, think ahead about how you'll handle this challenge. Decide ahead of time – and even rehearse – what you'll say and do. Learn a few tricks. If you're holding a bottle of water or a can of soda, for instance, you're less likely to be offered a drink you don't want.
- Arrange a "bail-out" code phrase you can use with your parents without losing face with your peers. You might call home from a party at which you're feeling pressured to drink alcohol and say, for instance, "Can you come and drive me home? I have a terrible earache."
- Learn to feel comfortable saying "no." With good friends you should never have to offer an explanation or apology. But if you feel you need an excuse for, say, turning down a drink or smoke, think up a few lines you can use casually. You can always say, "No, thanks, I've got a belt test in karate next week and I'm in training," or "No way – my uncle just died of cirrhosis and I'm not even looking at any booze." Hang with people who feel the same way you do. Choose friends who will speak up with you when you're in need of moral support, and be quick to speak up for a friend in the same way. If you're hearing that little voice telling you a situation's not right, chances are others hear it, too. Just having one other person stand with you against peer pressure makes it much easier for both people to resist.
- Blame your parents: "Are you kidding? If my mom found out, she'd kill me, and her spies are everywhere."
- If a situation seems dangerous, don't hesitate to get an adult's help.

It's not always easy to resist negative peer pressure, but when you do, it is easy to feel good about it afterward. And you may even be a positive influence on your peers who feel the same way – often it just takes one person to speak out or take a different action to change a situation. Your friends may follow if you have the courage to do something different or refuse to go along with the group. Consider yourself a leader, and know that you have the potential to make a difference.

SOCIAL POWER DEFINITION

Social power is the potential for social influence. The available tools one has to exert influence

over another can lead to a change in that person. Social power and social influence are separate and distinct concepts. Although social power is potential (which may or may not be used), social influence is an effect, an actual change (or deliberate maintenance) in the beliefs, attitudes, behavior, emotions, and so on, of someone because of the actions or presence of another. The person or group that is the source of influence is commonly known as the influencing agent, whereas the object of the attempted or successful influence attempt is commonly known as the target (of the influence). Thus, influencing agents have social power, which are the means they may use to influence targets.

Social Power Background and History

The ability of one person (or group) to get others to do his or her will, also known as social power, has long been of interest to social psychologists. Perhaps this is because so much of human interaction involves the change or the attempt to change the beliefs, attitudes, or behaviors of another. Because of the long-standing interest in the topic, several different investigations have used different definitions of social power and different ways of measuring power. However, an extensive survey has found that the approach most commonly used originally identified five distinct potential tactics one could use in an influence attempt. This approach was updated some years ago and now includes six distinct tactics that can be subdivided into 11 varieties. Of course, in an influence attempt multiple types of influence are often used at the same time. The types of social power are as follows:

- **Informational.** This type is the ability to rationally persuade someone.
- **Expert.** This social power is similar to informational power except that arguments are not necessary because the target trusts the influencing agent.
- **Referent.** The referent type is based on the target's identifying and liking the influencing agent and, because of this, wanting to comply with his or her requests.
- **Coercive power.** This type involves threat of punishment. These can be things such as monetary fines (impersonal) or simply personal disapproval (personal).
- **Reward power.** This social power type stems from the ability of the influencing agent to grant some kind of reward, either impersonal or personal
- **Legitimate power.** Based on what general society typically expects of us, this includes (a) the formal legitimate (or position) norm, which is the right to ask for something based simply on position or job title; (b) the reciprocity norm, whereby if someone does something for you, you owe him or her the favor in return; (c) the equity norm, the idea that one is expected to help others receive what they deserve, for example, if you work hard, you should get rewarded; and (d) social responsibility (or dependence), whereby people are obligated to help those who depend on them.

The type of social power used in an influence attempt often depends on a person's motivations. Sometimes people are consciously aware of their motivations, and sometimes they are not. Clever influencing agents often choose the kind of influence they use based on considerations of potential effectiveness and other factors. These factors can be quite varied. For example, some people are motivated by the desire to appear powerful. To feel powerful, an influencing agent may choose a type of influence strategy that makes him or her feel as though he or she is in control of the target of influence. If so, the influencing agent may choose to use coercion or reward in the influence attempt. Similarly, a desire to enhance one's sense of power in the eyes of others, status, security, role requirements, the desire to harm a target of influence, and self-esteem considerations might lead one to choose the more controlling, stronger, or harsher types of influence tactics (such as coercion). Others may wish to maintain a friendship or appear humble. In that case, they would rely

more on information.

When these stronger or harsher types of power are used effectively, they enhance the influencing agent's view of himself or herself because the influencing agent can attribute subsequent change in the target to himself or herself. When this occurs, the powerholder then tends to think less of the target of influence. It has been argued that simply through the continual exercise of successful influence, the powerholder's view of others and himself or herself changes in a harmful way. The powerholder begins to view himself or herself as superior to the person that over which he or she is exercising power, and because of this feeling of superiority, may treat the target of influence in a demeaning manner. This effect would be consistent with the common belief that power is a corrupting influence.

SOCIAL POWER EVIDENCE

Hundreds of studies published in respected scientific journals involving social power as described earlier have been conducted in several diverse fields, including health and medicine, family relations, gender relations, education, marketing and consumer psychology, social and organizational psychology, and examinations of confrontation between political figures. Studies have been conducted in the context simulations and questionnaires, strictly controlled laboratory settings using traditional experimental methods, real-world settings such as hospitals and other large organizations, and through historical case study analysis.

IMPORTANCE OF SOCIAL POWER

Much of what humans do as individuals and society involves influencing others. People want and need things from others, things such as affection, money, opportunity, work, and justice. How they get those things often depends on their abilities to influence others to grant their desires. In addition, people are also the constant targets of the influence attempts of others. Thus, it is important to understand what causes people to comply with others' wishes, and how the exercise of power affects both targets and influencing agents. The study of social power provides that knowledge.

PSYCHOLOGICAL REACTANCE

Almost 60 years have passed since Brehm presented a theory of psychological reactance as an answer to these questions. Reactance – the motivation to regain a freedom after it has been lost or threatened – leads people to resist the social influence of others. Since Brehm's first publication on reactance in 1966, the phenomenon has attracted attention in basic as well as applied research in areas such as health, marketing, politics, and education, and a wealth of reactance studies have been published. Forty years after Brehm's first publication, Miron and Brehm (2006) reviewed those areas they found especially relevant and pointed to several gaps in the research. Inspired by their review paper, we set out to explore the research addressing these gaps. About 50 years after the theory was first proposed, it is much clearer what reactance is and what role it plays when freedoms are threatened. However, there are still unanswered but important questions for psychology to clarify.

REACTANCE THEORY

In general, people are convinced that they possess certain freedoms to engage in so-called free behaviors. Yet there are times when they cannot, or at least feel that they cannot, do so. Being persuaded to buy a specific product in the grocery store, being forced to pay tuition fees, being prohibited from using a mobile phone in school, and being instructed to perform work for the boss

are all examples of threats to the freedom to act as desired, and this is where reactance comes into play. Reactance is an unpleasant motivational arousal that emerges when people experience a threat to or loss of their free behaviors. It serves as a motivator to restore one's freedom. The amount of reactance depends on the importance of the threatened freedom and the perceived magnitude of the threat. Internal threats are self-imposed threats arising from choosing specific alternatives and rejecting others. External threats arise either from impersonal situational factors that by happenstance create a barrier to an individual's freedom or from social influence attempts targeting a specific individual (Brehm, 1966; Brehm & Brehm, 1981; Clee & Wicklund, 1980). The unpleasant motivational state of reactance results in behavioral and cognitive efforts to reestablish one's freedom, accompanied by the experience of emotion.

Can Reactance Be Measured?

In their review paper, already provided some answers and further suggestions to the question of how to measure reactance. For measuring reactance as a trait they specify measurements such as the Hong' Psychological Reactance Scale (HPRS; e.g.,) which is still the most commonly used instrument. It has been translated into many languages and is used in countries around the world (However, research still does not agree on the factor structure. While , (reduced the original 18-item scale to a one-factor measure comprising 10 items, suggested a two-factor structure comprising an affective and a cognitive dimension.

Measurements of the state of reactance are rare, possibly because Brehm conceptualized reactance as "an intervening, hypothetical variable" that cannot be measured directly (; see also). However, in 2006 Miron and Brehm suggested that "reactance could be directly assessed through measurement of the subjective experience (feeling) that accompanies the urge to restore freedom"). The authors suggest that future studies should explore what people feel if they experience threats to their freedom. Over the last 10 years the question of how to measure the experience of reactance has attracted increasing attention.

Exploring persuasive messages, developed four items to assess people's perceived threat to freedom with regard to the message.¹ They demonstrated that a message that is perceived as highly threatening to one's freedom arouses reactance, which they conceptualized as a latent variable intermingling anger affect and negative cognition. To measure anger affect, Dillard and Shen asked their participants to indicate how irritated, angry, annoyed, and aggravated they were with regard to a freedom-threatening message. Further, they instructed participants to write down whatever came to mind after reading the message. Independent raters coded the thoughts as supportive, neutral, or negative. They found that anger and negative cognitions in the form of counterarguments mediated the relationship between the freedom-threatening message and people's attitudes toward the message. This attitude guided people's behavioral intentions to follow or not follow the advice of the message. But did affect and cognition have separate or combined effects on people's responses to the message? To test this, the authors compared four structural equation models: a single-process cognitive model, a single-process affective model, a dual-process model in which affective and cognitive reactions had unique effects on people's responses to the persuasive message, and an intertwined model in which affect and cognition were considered an alloy that could not be disentangled. In two studies they found the best fit for the intertwined model. In a meta-analytic review of 20 studies, Rains (2013) confirmed that the intertwined model was superior to the alternative models.

In a line of research on cross-cultural reactance (also see the section Reactance, Culture, and the Self), Jonas and colleagues used a different approach to measure the experience of reactance. They combined items assessing people's perception of threat to their freedom with items assessing people's emotional experience.² This measure has been shown to mediate the effect of freedom threat on behavioral intentions (e.g., the intention to help, J, Study 4). It has since been used in several studies investigating reactance in the context of change situations (e.g., personal change or political reforms), vicarious threats, and culture, and it has been shown to mediate cognitive and behavioral outcome variables such as attitude, intended and real resistance behavior, and performance. They validated these items together with items assessing aggressive behavioral intentions as well as negative evaluations and propose a new state reactance measure, the so-called Salzburger State Reactance Scale.

Also suggested that another way of directly assessing reactance would be to use physiological measures. research has demonstrated that freedom threats affect people's physiological arousal. Whereas in the previous study (Baum et al., 1986) arousal level increased when people were confronted with an uncontrollable event, such as a threat to their freedom, in the more recent studies (Sittenthaler, Jonas, et al., 2015; Sittenthaler, Steindl, et al., 2015) merely imagining being restricted from visiting a flat they might have wanted to rent was sufficient to increase people's heart rate. Interestingly, there was a difference between the heart rate increase following an illegitimate restriction (unexpected and inappropriate) and a legitimate restriction (unexpected but appropriate, i.e., when people were given reasons for not being allowed to visit the flat). When confronted with an illegitimate restriction, people's heart rate increased immediately. Heart rate also increased following a legitimate restriction, but only after a time delay. This finding led us to assume that different processes might be involved when people are confronted with different kinds of threats to their freedom. Whereas some threats (e.g., illegitimate threats) seem to follow a more emotional process leading to immediate arousal, others might induce people to reflect upon the situation before getting into an arousal state (Sittenthaler, Steindl, et al., 2015; see also Sittenthaler, Jonas, et al., 2015, for similar processes when confronted with self-experienced vs. vicarious reactance, on which we elaborate in more detail below). These findings suggest that dual processes in the form of more automatic, impulsive affect-driven versus more cognitive dominated reflective information processing appear to be important when looking at reactance processes following different kinds of threats. Affect and motivational arousal seem to be involved in both types of reactance responses, but occurring a bit later for the more reflective, cognitively oriented responses. These findings allow us to connect this line of research with Dillard and Shen's (2005) intertwined model, which conceptualizes reactance as a latent variable intermingling affect and cognition (see also Rains, 2013). Even if people first reflect on the restriction to their freedom (cognition), the experience of reactance seems to be also characterized by affect.

Different lines of research all suggest that one important component of reactance is the experience of anger. Anger is typically understood as a negative emotion but is also related to motivation, namely, approach motivation (Harmon-Jones, 2003, 2004; Harmon-Jones & Allen, 1998; Harmon-Jones, Harmon-Jones, Abramson, & Peterson, 2009). Approach motivation – the motivation to move toward something – is a force that determines human behavior and affect (Gray, 1982, 1990). It contrasts with avoidance motivation, which motivates people to withdraw (Harmon-Jones, Harmon-Jones, & Price, 2013). In a theoretical overview on reactance, Chadee (2011) even proposed that approach motivation is the necessary prerequisite for reactance to emerge. Feeling able to resolve a threatening event (i.e., to cope with a situation) has been shown to evoke approach motivation

(Harmon-Jones, Lueck, Fearn, & Harmon-Jones, 2006; Harmon-Jones, Sigelman, Bohlig, & Harmon-Jones, 2003). Because people experiencing reactance are striving to restore their freedom (i.e., they seem able to cope with the threat), reactance should be associated with approach motivation. Steindl, Jonas, Klackl, and Sittenthaler (2015) used electroencephalography (EEG) and found that reactance was associated with heightened left frontal alpha asymmetry, which is thought to be an indicator of approach motivation (Harmon-Jones, 2003; Harmon-Jones & Allen, 1998).

In summary, recent research suggests that reactance can indeed be measured. It is possible to assess people's experience of a threatening situation, the cognitive and affective processes that are activated by it, and the physiological arousal and activity in the brain that accompany the attempt to restore freedom. However, the extent to which people are affected by threats to their freedom and the resulting motivation to restore their freedom strongly depend on a person's self being involved in the reactance process.

REACTANCE, CULTURE, AND THE SELF

Miron and Brehm (2006) proposed that different cultures, such as individualistic and collectivistic, react to different threats and in different ways to restore their freedom. They suggested that it might be crucial whether a threat comes from individuals inside or outside one's group. They cited research showing that individualists and collectivists differ in their expectations of control and choice and thus in their self-construal, making them more or less sensitive to threats (Iyengar & Lepper, 1999). Assessing people's experience of reactance by measuring perceived threat and emotional experience, Jonas et al. (2009) showed that individualists or people with an independent self-construal are more affected by threats to their individual, personal freedom (e.g., doing another person a favor by lending him/her one's business car), in contrast to collectivists or people with an interdependent self-construal, who are more affected by threats to their collective freedom, that is, threats affecting not only themselves but also their group (e.g., doing another branch a favor by lending them a pool of business cars). The same results were obtained when independent versus interdependent values were primed by describing the differences versus similarities between themselves and their close others (see Trafimov, Triandis, & Goto, 1991). This suggests that people's experience of reactance strongly depends on the goals and values most accessible when the threat occurs. In these cultural studies, whether the values were group or individual was the key factor causing the differences in reactance. Thus, the experience of reactance as a mix of perceived threat and emotions seems to be motivational in nature. Only if people's values are affected do they seem to be energized to strive for a restoration of their freedom.

Graupmann, Jonas, Meier, Hawelka, and Aichhorn (2012) found that a threat to freedom of choice coming from one's ingroup aroused more reactance in individualistic than in collectivistic people. Individualists indicated a higher increase of attractiveness of the eliminated option when the threat originated in the ingroup versus an outgroup. In contrast, collectivists indicated a higher increase in attractiveness of the eliminated option when the threat originated in an outgroup versus the ingroup. This again seems to be because individualists highly value their individual freedom and distinctiveness from their ingroup (Markus & Kitayama, 1991). Thus, they are highly threatened by decisions coming from the ingroup. Collectivists, by contrast, highly value their connectedness with their ingroup (Markus & Kitayama, 1991) and thus, do not feel threatened by decisions coming from the ingroup.

Further evidence illustrating the motivational character of reactance comes from Laurin, Kay, and

Fitzsimons (2012). They explained the contradictory effect that some people may endorse a decision even though they are not in favor of it. Two factors determining the reaction to restrictions are the absoluteness of a restriction and self-relevance. If the threat is absolute, that is, sure to come into effect, people rationalize it. If it is nonabsolute, that is, it may not come into effect, people respond with reactance. Both effects, rationalization and reactance, were strongest if the restriction was self-relevant.

The differences in reactance processes that are due to one's self being involved in the threat raise the issue of vicarious reactance, in which a person experiences reactance to a threat to another individual or group, even if the threat does not have any implications for the person's own freedom of choice (Miron & Brehm, 2006). Is it possible to experience reactance on behalf of another person? What happens when people observe the restriction of another person?

VICARIOUS REACTANCE

Two distinct views of vicarious reactance exist: (a) It occurs as a consequence of people cognitively taking the role of the restricted person and asking themselves what the restricted person might experience tested female participants who observed an actor being excluded from a decision-making process and found that the participants themselves showed vicarious reactance by rating the attractiveness of the discussion topics higher when the actor was restricted versus not restricted. The authors concluded that "reactance can be aroused by the mere observance of a threat to another's freedom, without the perception of one's own freedom being potentially directly threatened" (p. 767).

Whereas measured reactance only in the form of cognitive changes in the attractiveness of an option, Sittenthaler and colleagues (Sittenthaler, Traut-Mattausch, et al., 2015) assessed the subjective experience of vicarious reactance. They found that people experienced strong reactance as a mix of perceived threat and emotions if they observed or read about a freedom threat to another person. These vicarious reactions to freedom threats, however, were moderated by people's self-construal. People with a more interdependent self-construal or a collectivistic cultural background (e.g., coming from Bosnia or Croatia) experienced more vicarious reactance (especially for an in-group member) compared to people with a more independent self-construal or an individualistic cultural background (e.g., coming from Germany or Austria). Furthermore, people with a more independent self-construal or an individualistic cultural background indicated stronger reactance when restricted themselves rather than being vicariously restricted. Other cross-cultural studies on vicarious reactance among collectivists from the Philippines and Eastern European countries (e.g., the Czech Republic, Romania, Russia; replicated those findings).

People respond to both kinds of freedom restrictions (self- and vicariously experienced), but Sittenthaler and colleagues presented evidence that the process underlying vicarious threats is different from the process of self-experienced threats. Before experiencing the motivational arousal state of reactance, people observing a restriction first seem to need to think about the restriction of the other person. This was demonstrated by looking at threatened people's cardiovascular responses (Study 2): While there was an immediate increase in physiological arousal (e.g., heart rate) after self-restrictions the increase after vicarious restrictions was delayed. Further evidence revealed that vicarious reactance is associated with a more reflective, cognitive process and self-experienced reactance with a more impulsive, emotional process (Studies 3 and 4). This was shown by using a cognitive load task (memorizing a 7-digit number), which diminished people's experience

of vicarious reactance, and an emotionally distracting task (think about the nicest day of last summer), which only diminished self-experienced reactance.

In a nutshell, research in the cultural context has shown that reactance is a state that (a) is influenced by people's cultural self-construal and (b) can also be experienced vicariously. Only if the freedom threat affects aspects that are important to the self do people show reactance. This illuminates that reactance is motivational in nature. The motivational nature of reactance also becomes evident in the different reactance processes we described before – people's responses to self-experienced and illegitimate threats appear to be more impulsive, whereas the responses to vicarious and legitimate threats seem to be more reflective. Similar different processes can also be found in the persuasion context.

PERSUASION AND RESISTANCE TO CHANGE

If persuasion poses a threat to a person's free behaviors, reactance in the form of negative cognitions, such as counterarguing and anger affect, leads to more negative attitudes toward the message and consequently to less intention to behave according to the message. Counterarguing and anger as an intertwined reactance process have been shown to mediate the effect of perceived freedom threat on reactance effects such as disagreeing with the message. Persuasive messages arouse reactance especially by using forceful and controlling language, such as the terms should, ought, must, and need.

This language has been shown to be perceived as more threatening and as eliciting more reactance than noncontrolling language, such as the terms consider, can, could, and may (Miller, Lane, Deatrick, Young, & Potts, 2007; Quick & Stephenson, 2008). For example, in a study on convincing members of a fitness club to participate in special exercises, people who had been given a forceful message such as "you have to do it" compared to a nonforceful message such as "consider it" experienced more threat, which elicited more reactance (negative cognitions and anger), and consequently, people were less convinced (Quick & Considine, 2008). Additionally, how threatening controlling messages are perceived to be depends on the level of social agency. Social agency is the extent to which a social agent is "perceived as being capable of social behavior that resembles human-human interaction" (Roubroeks, Ham, & Midden, 2011, p. 157). Roubroeks et al. showed their participants low- or high-control advice about energy conservation in the form of a text only, a text with a picture of a robotic agent, or a text with a brief film clip of the agent (Roubroeks et al., 2011; Roubroeks, Midden, & Ham, 2009). Both studies confirmed that the stronger the social agency of persuasive messages, the higher people's perceived threat and thus the higher their reactance (negative cognitions and anger).

With regard to the reactance process in the context of persuasion, research by Silvia (2006) showed that threats to freedom through persuasive messages can elicit disagreement through different paths and that these paths have different consequences. If freedom was threatened at the end of a persuasive message, people directly disagreed with the message. If freedom was threatened at the beginning of the persuasive message, negative cognitions such as counterarguing and perceiving the source as low in credibility mediated the effect on people's disagreement with the message. While disagreement that originated directly from the threat at the end of the message decreased over time, disagreement that originated in negative cognitions was stable over time. Thus a reflective reactance process, in which cognitions affect subsequent reactions, is a more stable reactance process. Research by Ziegler, Schlett, and Aydinly (2013) furthermore suggests that in this state,

people also seem to react very sensitively to the weakness of arguments when confronted with a highly threatening message. However, when they are in a state of positive or negative mood, the strength of the arguments plays a less important role in predicting their reaction toward the freedom threat. Interestingly, in a different line of research only people with sufficient cognitive resources showed reactance in the form of a negative attitude toward a restriction; without sufficient resources they even justified the restriction (Laurin, Kay, Proudfoot, & Fitzsimons, 2013).

So far, affect and cognition seem to be central elements if we want to understand the nature of reactance processes. This is most clearly expressed in the intertwined model of reactance (Dillard & Shen, 2005; Rains, 2013), but seems to be also supported by other research lines. However, even if reactance can be conceptualized as a latent variable intermingling anger affect and negative cognition, we can distinguish further between more affect-driven impulsive processes and more cognition-driven reflective reactance processes. In some situations, these different processes might be driven by both cognition and affect in an intermingling manner. However, in other situations, they might be distinguishable from each other. The latter becomes apparent if we look at shorter persuasive messages where there is less room for counterarguing.

For short messages, it has been found that the framing of the message as loss (e.g., "When you do not use sun protection you will pay costs.") led to a significantly stronger perception of threat than a gain frame (e.g., "When you use sun protection you will gain benefits.") and that the perceived threat was positively correlated with anger but not with negative cognitions (Cho & Sands, 2011). The authors speculated that "different types of messages create differences in the process of reactance" (Cho & Sands, 2011, p. 315).

The influence of different types of threats that rely on simple cues has also been explored in the context of political reforms. Citizens' reactions are influenced by the way politicians communicate reforms. Focusing on limitations that will result from the change has been shown to evoke more experience of reactance (using Jonas et al.'s, 2009, combined measure of an experience of perceived threat and negative affect) and thus more negative attitudes toward the reform than focusing on improvements that will result (Traut-Mattausch et al., 2008). Furthermore, a study by Förg, Jonas, Traut-Mattausch, Heinemann, and Frey (2007) demonstrated that experts communicating the reform to citizens aroused more experience of reactance and consequently a more negative attitude toward the reform than when laypeople delivered the message. Likewise, in the context of communicating changes, Niesta Kayser et al. (2015) used the same measurement (Jonas et al., 2009) and found that presenting a change message within an approach (focusing on possible positive outcomes) versus an avoidance (avoidance of possible negative outcomes) frame led to differences in people's experienced reactance. Changes presented as avoidance of negative outcomes aroused more experience of reactance, which mediated the effect of avoidance on people's lower agreement with the change. Avoidance resulted in more counterarguing and less positive perceptions of the communicator and the change message.

To summarize, in the context of persuasion, most of the recent research has been conducted in the tradition of Dillard and Shen' (2005) intertwined model, according to which people receiving persuasive messages perceive them as threats to their freedom, which further elicit an experience of reactance in the form of counterarguments that are accompanied by anger affect. When attempts are made to persuade people by using a forceful message, this message motivates people to present arguments against the persuasive attempt (counterarguing). This is a cognitive-reflective

process leading to negative attitudes toward the message and finally results in lower behavioral intention to follow the aim of the message. Research that indirectly manipulated threat through framing has found reactance to be a combination of perceived threat and negative affect (Traut-Mattusch et al., 2008). In these studies it seems that certain cues elicit an affective-impulsive process, which further leads to negative cognitions and a behavioral intention to restore one's freedom. This might be comparable to dual-process models and their distinction between more impulsive and more reflective processes of social behavior (e.g., Strack & Deutsch, 2004; for an overview, see Gawronski & Creighton, 2013). On the one hand, Dillard and Shen (2005) and Rains (2013) tested a dual-process model and rejected it. Yet, on the other hand, as described earlier, Sittenthaler and colleagues have shown in two contexts that depending on the threat (legitimate vs. illegitimate threats; self-experienced vs. vicarious threats), people either react immediately or after a time delay with an increased physiological arousal that can be seen as an indicator of motivation (Baum et al., 1986; Wright, 2008; Zanna & Cooper, 1974). Results showing that reactance can emerge automatically also come from studies on the implicit activation of reactance.

Priming Reactance

As mentioned by Miron and Brehm (2006), people do not react only to obvious, direct threats. Reactance can also be aroused in subtle way and even outside of conscious awareness. In a study by Wellman and Geers (2009), participants were primed with modified items of the Therapeutic Reactance Scale. Additionally, they were given a pill and told that it either did or did not improve performance on accuracy tasks. Results indicated that participants who were primed with reactance and who were given an explicit expectation that they should be good at the task committed the most errors, contrary to the experimenter's expectation.

showed that even subliminal primes can arouse reactance. They subliminally primed participants with the name of a controlling significant other person who wanted them to work hard versus a significant other who wanted them to have fun. Results reflected that participants primed with the controlling person's name opposed the person's wishes by answering fewer anagrams correctly than participants primed with the noncontrolling person's name.³ Thus, it is possible to arouse reactance with stimuli not consciously perceived, and relatively automatic processes can produce immediate reactance effects.

However, this is not always the case. found in a study on stereotype threat and negotiation that only an explicit expectation of behavior led to the exact opposite behavior. While an implicit activation of the stereotype that men are better in negotiating led to lower performance in women, an explicit activation led to higher performance in women.

Reactance as Motivation

Reactance theory, following the tradition of dissonance theory, is a theory of motivation. Using Brehm's description of reactance, it is "a motivational state and as such is assumed to have energizing and behavior-directing properties. This contrasts with the concept of learned helplessness, which is a state of passively enduring a threat or even withdrawing from it). Helpless individuals usually do not feel capable of changing an unpleasant situation. Reactant individuals, in contrast, feel capable of changing the current situation, that is, the freedom threat). Consistent with these analyses, in Kravitz study of "stereotype reactance," such reactance occurred only if women had sufficient power to act, which supports the idea that reactance develops only if people feel capable of restoring their freedom. Thus reactance possesses energizing and behavior-directing properties

when something to restore the freedom can be done .

Although the intertwined model addresses anger, which is a motivational state, it refers to anger only as affect. However, as demonstrated by EEG studies, anger is approach motivational). Thus, reactance is a state possessing a tremendous motivational force that induces undesirable outcomes such as disagreement or devaluation. Interestingly, most of the presented studies viewed reactance primarily as an undesirable factor that has to be eliminated or at least reduced. Several methods to reduce or prevent reactance have already been tested. For example, to perceive a message as less threatening, a restoration postscript telling participants that they are free to decide for themselves what is good for them can help. Moreover, if the threatened person takes the perspective of the threatening person or if state empathy is induced by a persuasive message, reactance is lower(). Another method is inoculation, which forewarns people of a potential threat. This strategy reduces the experienced threat and, consequently, reactance effects. However, in other cases, one could even make use of the motivational force of reactance. Paradoxical interventions, for example, use reactance to successfully reduce symptoms such as procrastination (for an overview see).

Furthermore, reactance can produce both undesirable and desirable outcomes. It has been found, for example, that the experience of reactance can elicit heightened achievement motivation . Recent studies have also shown that the experience of reactance can be associated not just with negative feelings, such as anger, but also with activating positive affect, such as feeling strong and determined . We invite future research to investigate the desirable motivational side of reactance in order to make use of its energizing probabilities.

Implications and Suggestions for Future Research

About 50 years of research has provided many answers regarding the determinants of reactance, the subjective experience of reactance, the processes involved, and its consequences. Although stated that reactance cannot be measured directly, research has found a way to do so. idea of assessing the affective, cognitive, and physiological aspects of experiencing reactance. Neuroscientific studies using EEG and functional magnetic resonance imaging (fMRI) have contributed to an even better grasp of the reactance phenomenon .

These studies showed us that reactance is a state consisting of affective, cognitive, and motivational components. One affective as well as motivational facet of the experience is anger. As anger is typically understood as a negative emotion emerging when people are kept from reaching a desired goal (for an overview , one might wonder if reactance is the same as anger. Although anger is an important component of reactance and has used fMRI techniques to compare conditions in which participants read about reactance-arousing, anger- arousing, or neutral situations. During reactance-arousing compared to anger-arousing situations, the middle temporal lobe, the temporal poles, and the gyrus rectus were active. These regions have been shown to be involved in mentalizing processes in which people are drawing inferences about the mental states of others.

This suggests one basis for distinguishing reactance processes from more pure anger processes, an issue that should be explored more carefully in future research.

Another interesting question for future research would be whether reactance motivation will always

lead to efforts to restore freedom. According to motivational intensity theory the emerging effort people expend to restore their freedom depends on the difficulty of the required behavior. The more difficult the behavior, the more effort is invested, up to the point where it seems impossible to restore freedom. What happens to reactance arousal and striving if one cannot restore an eliminated freedom is an open question. suggested, more research is needed to better understand the role of perceived difficulty of freedom restoration in reactance striving.

In the context of persuasion, the intertwined model describing reactance as a combination of anger and negative cognition that further affect people's attitudes seems to be an important model for understanding the reactance process. However, it is unclear if this model generalizes to all reactance situations, that is, also to those outside the persuasion context. Studies using framing, vicarious, or legitimate freedom threats for eliciting reactance indicate two processes of reactance, a more impulsive emotional and a more reflective cognitive process. People seem to either react to the threat immediately or after a time delay with intermediary cognition examining the process of reactance induced by guilt appeals found that in the context of guilt that the affective and cognitive reactance component did not correlate, which is in contrast to the intertwined model. However, in accordance with the intertwined model, both variables affected people's reactions to the perceived freedom threat. Yet, they did this via different routes. Whereas guilt directly affected the affective component of reactance (anger), it only indirectly affected the cognitive component of reactance (negative cognitions) via people's awareness that the message was a guilt appeal. The question of when and how different reactance models (dual-process vs. intertwined) apply seems to be a recent interest in reactance research and should further be explored in future studies.

Similar to the investigation of guilt, it would also be interesting for future research to take a closer look at the relation between reactance and other negative (and positive) emotions, like fear looked at reactance processes resulting from fear appeals from a within subjects perspective and interestingly found that the presentation of humorous information can mitigate reactance and therefore improve the persuasiveness of a message provide more evidence that reactance threat can also result from perceived threats to one's groups and social identities. Specifically, they show that examples of stereotypic women arouse some reactance response in feminist women and examples of counterstereotypic women arouse reactance in more traditional women. Interventions in the context of health behaviors can also elicit reactance which might contribute to the often missing effects in the long term.

Furthermore, how do cognition and affect combine in different types of freedom threats? Is there a difference between restricting a freedom versus imposing an alternative, and if so, how does this difference affect emotional experience, cognition, motivation, and physiological arousal? Although it is difficult to explore these processes in real-world phenomena, it would be enormously enriching for reactance research.

As people are often threatened by other people, reactance plays a crucial role in interaction processes. In any social interaction, one person's reaction influences the other person's experience, behavior, and cognition, which in turn affects the first person, and so on (Steindl & Jonas, in press). Freedom threats are probably common in many social interactions. Customers may feel restricted by salespeople. Service providers may feel controlled by those they serve. Patients may feel constrained by doctors and therapists. Marital partners may perceive threats to their freedoms from their spouses. Future research might consider the dynamics of these reactance processes in a wide

range of social contexts, to reach an understanding of how people's reactions to freedom threats mutually affect each other. The papers in the present volume hopefully both address these new questions and will serve to stimulate further efforts to do so.

CONCLUSION

Since Miron and Brehm's (2006) review paper, research on psychological reactance has continued. Although our knowledge about this fascinating phenomenon has grown, the puzzle of reactance is not yet complete. As Miron and Brehm (2006) so aptly put it, we further "hope that future research will consider the various implications of the theory for real

AGGRESSION AGGRESSION DEFINITION

In sports and in business, the term aggressive is frequently used when the term assertive, enthusiastic, or confident would be more accurate. For example, an aggressive salesperson is one who tries really hard to sell you something. Within psychology, the term aggression means something different. Most social psychologists define human aggression as any behavior that is intended to harm another person who wants to avoid the harm. This definition includes three important features. First, aggression is a behavior. You can see it. For example, you can see a person shoot, stab, hit, slap, or curse someone. Aggression is not an emotion that occurs inside a person, such as feeling angry. Aggression is not a thought that occurs inside someone's brain, such as mentally rehearsing a murder one is about to commit. Aggression is a behavior you can see. Second, aggression is intentional. Aggression is not accidental, such as when a drunk driver accidentally runs over a child on a tricycle. In addition, not all intentional behaviors that hurt others are aggressive behaviors. For example, a dentist might intentionally give a patient a shot of novocaine (and the shot hurts!), but the goal is to help rather than hurt the patient. Third, the victim wants to avoid the harm. Thus, again, the dental patient is excluded, because the patient is not seeking to avoid the harm (in fact, the patient probably booked the appointment weeks in advance and paid to have it done!). Suicide would also be excluded, because the person who commits suicide does not want to avoid the harm. Sadomasochism would likewise be excluded, because the masochist enjoys being harmed by the sadist.

The motives for aggression might differ. Consider two examples. In the first example, a husband finds his wife and her lover together in bed. He takes his hunting rifle from a closet and shoots and kills both individuals. In the second example, a "hitman" uses a rifle to kill another person for money. The motives appear quite different in these two examples. In the first example, the man appears to be motivated by anger. He is enraged when he finds his wife making love to another man, so he shoots both of them. In the second example, the hitman appears to be motivated by money. The hitman probably does not hate his victim. He might not even know his victim, but he kills that person anyway for the money. To capture different types of aggression based on different motives, psychologists have made a distinction between hostile aggression (also called affective, angry, impulsive, reactive, or retaliatory aggression) and instrumental aggression (also called proactive aggression). Hostile aggression is "hot," impulsive, angry behavior that is motivated by a desire to harm someone. Instrumental aggression is "cold," premeditated, calculated behavior that is motivated by some other goal (e.g., obtain money, restore one's image, restore justice).

One difficulty with the distinction between hostile and instrumental aggression is that the motives for aggression are often mixed. Consider the following example. On April 20, 1999, the 110th anniversary of Adolf Hitler's birthday, Eric Harris and Dylan Klebold entered their high school in

Littleton, Colorado (United States), with weapons and ammunition. They murdered 13 students and wounded 23 others before turning the guns on themselves. Harris and Klebold were repeatedly angered and provoked by the athletes in their school. However, they planned the massacre more than a year in advance, did research on weapons and explosives, made drawings of their plans, and conducted rehearsals. Was this an act of hostile or instrumental aggression? It is hard to say. That is why some social psychologists have argued that it is time to get rid of the distinction between hostile and instrumental aggression.

Another distinction is between displaced and direct aggression. Displaced aggression (also called the “kicking the dog” effect) involves substituting the target of aggression: The person has an impulse to attack one person but attacks someone else instead. Direct aggression involves attacking the person who provoked you. People displace aggression for several reasons. Directly aggressing against the source of provocation may be unfeasible because the source is unavailable (e.g. the provoker has left the situation) or because the source is an intangible entity (e.g., hot temperature, loud noise, foul odor). Fear of retaliation or punishment from the provoker may also inhibit direct aggression. For example, an employee who is reprimanded by his boss may be reluctant to retaliate because he does not want to lose his job.

Violence is aggression that has extreme physical harm as its goal, such as injury or death. For example, one child intentionally pushing another off a tricycle is an act of aggression but is not an act of violence. One person intentionally hitting, kicking, shooting, or stabbing another person is an act of violence. Thus, all violent acts are aggressive acts, but not all aggressive acts are violent; only the extreme ones are.

Is Aggression Innate or Learned?

For decades, psychologists have debated whether aggression is innate or learned. Instinct theories propose that the causes of aggression are internal, whereas learning theories propose that the causes of aggression are external. Sigmund Freud argued that human motivational forces such as sex and aggression are based on instincts. In his early writings, Freud proposed the drive for sensory and sexual gratification as the primary human instinct, which he called *eros*. After witnessing the horrors of World War I, however, Freud proposed that humans also have a destructive, death instinct, which he called *thanatos*.

According to Konrad Lorenz, a Nobel Prize-winning scientist, aggressive behavior in both humans and nonhumans comes from an aggressive instinct. This aggressive instinct presumably developed during the course of evolution because it promoted survival of the human species. Because fighting is closely linked to mating, the aggressive instinct helped ensure that only the strongest individuals would pass on their genes to future generations.

Other psychologists have proposed that aggression is not an innate drive, like hunger, in search of gratification. According to Albert Bandura’s social learning theory, people learn aggressive behaviors the same ways they learn other social behaviors—by direct experience and by observing others. When people observe and copy the behavior of others, this is called modeling. Modeling can weaken or strengthen aggressive responding. If the model is rewarded for behaving aggressively, aggressive responding is strengthened in observers. If the model is punished for behaving aggressively, aggressive responding is weakened in observers.

This nature versus nurture debate has frequently generated more heat than light. Many experts on aggression favor a middle ground in this debate. There is clearly a role for learning, and people can learn how to behave aggressively. Given the universality of aggression and some of its features (e.g., young men are always the most violent individuals), and recent findings from heritability studies, there may be an innate basis for aggression as well.

SOME FACTORS RELATED TO AGGRESSION FRUSTRATION AND OTHER UNPLEASANT EVENTS

In 1939, a group of psychologists from Yale University published a book titled *Frustration and Aggression*. In this book, they proposed the frustration-aggression hypothesis, which they summarized on the first page of their book with these two statements: (1) "The occurrence of aggressive behavior always presupposes the existence of frustration" and (2) "the existence of frustration always leads to some form of aggression." They defined frustration as blocking goal-directed behavior, such as when someone crowds in front of you while you are waiting in a long line. Although they were wrong in their use of the word always, there is no denying the basic truth that aggression is increased by frustration.

Fifty years later, Leonard Berkowitz modified the frustration-aggression hypothesis by proposing that all unpleasant events—instead of only frustration—deserve to be recognized as causes of aggression. Other examples of unpleasant events include hot temperatures, crowded conditions, foul odors, secondhand smoke, air pollution, loud noises, provocations, and even pain (e.g., hitting your thumb with a hammer).

All of these unpleasant environmental factors probably increase aggression because they make people feel bad and grumpy. But why should being in a bad mood increase aggression? One possible explanation is that angry people aggress because they think it will make them feel better. Because many people believe that venting is a healthy way to reduce anger and aggression, they might vent by lashing out at others to improve their mood. However, research has consistently shown that venting anger actually increases anger and aggression.

It is important to point out that like frustration, being in a bad mood is neither a necessary nor a sufficient condition for aggression. All people in a bad mood do not behave aggressively, and all aggressive people are not in a bad mood.

AGGRESSIVE CUES

Weapons. Obviously using a weapon can increase aggression and violence, but can just seeing a weapon increase aggression? The answer is yes. Research has shown that the mere presence of a weapon increases aggression, an effect called the weapons effect.

Violent Media. Content analyses show that violence is a common theme in many types of media, including television programs, films, and video games. Children are exposed to approximately 10,000 violent crimes in the media per year. The results from hundreds of studies have shown that violent media increase aggression. The magnitude of the effect of violent media on aggression is not trivial either. The correlation between TV violence and aggression is only slightly smaller than that correlation between smoking and lung cancer. Smoking provides a useful analogy for thinking about media violence effects. Not everyone who smokes gets lung cancer, and not everyone who gets lung cancer is a smoker. Smoking is not the only factor that causes lung cancer, but it is an

important factor. Similarly, not everyone who consumes violent media becomes aggressive, and not everyone who is aggressive consumes violent media. Media violence is not the only factor that causes aggression, but it is an important factor. Like the first cigarette, the first violent movie seen can make a person nauseous. After repeated exposure, however, the person craves more and more. The effects of smoking and viewing violence are cumulative. Smoking one cigarette probably will not cause lung cancer. Likewise, seeing one violent movie probably will not make a person more aggressive. But repeated exposure to both cigarettes and media violence can have harmful long-term consequences.

CHEMICAL INFLUENCES

Numerous chemicals have been shown to influence aggression, including testosterone, cortisol, serotonin, and alcohol.

Testosterone. Testosterone is the male sex hormone. Both males and females have testosterone, but males have a lot more of it. Testosterone has been linked to aggression. Robert Sapolsky, author of *The Trouble With Testosterone*, wrote, "Remove the source of testosterone in species after species and levels of aggression typically plummet. Reinstating normal testosterone levels afterward with injections of synthetic testosterone, and aggression returns."

Cortisol. A second hormone that is important to aggression is cortisol. Cortisol is the human stress hormone. Aggressive people have low cortisol levels, which suggests that they experience low levels of stress. How can this explain aggression? People who have low cortisol levels do not fear the negative consequences of their behavior, so they might be more likely to engage in aggressive behavior. Also, people who have low cortisol become easily bored, which might lead to sensation-seeking behavior such as aggression.

Serotonin. Another chemical influence is serotonin. In the brain, information is communicated between neurons (nerve cells) by the movement of chemicals across a small gap called the synapse. The chemical messengers are called neurotransmitters. Serotonin is one of these neurotransmitters. It has been called the "feel good" neurotransmitter. Low levels of serotonin have been linked to aggression in both animals and humans. For example, violent criminals have a serotonin deficit.

Alcohol. Alcohol has long been associated with violent and aggressive behavior. Well over half of violent crimes are committed by individuals who are intoxicated. Does all of this mean that aggression is somehow contained in alcohol? No. Alcohol increases rather than causes violent or aggressive tendencies. Factors that normally increase aggression, such as provocation, frustration, aggressive cues, and violent media, have a much stronger effect on intoxicated people than on sober people.

Self and Culture

Norms and Values. Amok is one of the few Indonesian words used in the English language. The term dates back to 1665, and describes a violent, uncontrollable frenzy. Running amok roughly translated means "going berserk." A young Malay man who had suffered some loss of face or other setback would run amok, recklessly performing violent acts. The Malays believed it was impossible for young men to restrain their wild, aggressive actions under those circumstances. However, when the British colonial administration disapproved of the practice and began to hold the young men responsible for their actions, including punishing them for the harm they did, most

Malays stopped running amok.

The history of running amok thus reveals three important points about aggression. First, it shows the influence of culture: The violence was accepted in one culture and prohibited in others, and when the local culture changed, the practice died out. Second, it shows that cultures can promote violence without placing a positive value on it. There is no sign that the Malays approved of running amok or thought it was a good, socially desirable form of action, but positive value wasn't necessary. All that was needed was for the culture to believe that it was normal for people to lose control under some circumstances and act violently as a result. Third, it shows that when people believe their aggression is beyond control, they are often mistaken—the supposedly uncontrollable pattern of running amok died out when the British cracked down on it. The influence of culture was thus mediated through self-control.

Self-Control. In 1990, two criminologists published a book called *A General Theory of Crime*. Such a flamboyant title was bound to stir controversy. After all, there are many crimes and many causes, and so even the idea of putting forward a single theory as the main explanation was pretty bold. What would their theory feature: Poverty? Frustration? Genetics? Media violence? Bad parenting? As it turned out, their main theory boiled down to poor self-control. The authors provided plenty of data to back up their theory. For one thing, criminals seem to be impulsive individuals who simply don't show much respect for norms, rules, and standards of behavior. If self-control is a general capacity for bringing one's behavior into line with rules and standards, criminals lack it. Another sign is that the lives of criminals show low self-control even in behaviors that are not against the law (e.g., smoking cigarettes).

Social psychology has found many causes of violence, including frustration, anger or insult, alcohol intoxication, violence in the media, and hot temperatures. This raises the question of why there isn't more violence than there is. After all, who hasn't experienced frustration, anger, insult, alcohol, media violence, or hot weather in the past year? Yet most people do not hurt or kill anyone. These factors may give rise to violent impulses, but most people restrain themselves. Violence starts when self-control stops.

Culture of Honor. The southern United States has long been associated with greater levels of violent attitudes and behaviors than the northern United States. In comparison to northern states, southern states have more homicides per capita, have fewer restrictions on gun ownership, allow people to shoot assailants and burglars without retreating first, are more accepting of corporal punishment of children at home and in schools, and are more supportive of any wars involving U.S. troops.

Social psychologist Richard Nisbett hypothesized that these regional differences are caused by a southern culture of honor, which calls for violent response to threats to one's honor. This culture apparently dates back to the Europeans who first came to the United States. The northern United States was settled by English and Dutch farmers, whereas the southern United States was settled by Scottish and Irish herders. A thief could become rich quick by stealing another person's herd. The same was not true of agricultural crops in the North. It is difficult to quickly steal 50 acres of corn. Men had to be ready to protect their herds with a violent response. A similar culture of violence exists in the western United States, or the so-called Wild West, where a cowboy could also lose his wealth quickly by not protecting his herd. (Cowboys herded cows, hence the name.) This violent culture isn't confined to the southern and western United States; cultural anthropologists have observed that

herding cultures throughout the world tend to be more violent than agricultural cultures.

Humiliation appears to be the primary cause of violence and aggression in cultures of honor. Humiliation is a state of disgrace or loss of self-respect (or of respect from others). It is closely related to the concept of shame. Research shows that feelings of shame frequently lead to violent and aggressive behavior. In cultures of honor there is nothing worse than being humiliated, and the appropriate response to humiliation is swift and intense retaliation.

Age and Aggression

Research has shown that the most aggressive human beings are toddlers, children 1 to 3 years old. Researchers observing toddlers in daycare settings have found that about 25% of the interactions involve some kind of physical aggression (e.g., one child pushes another child out of the way and takes that child's toy). High aggression rates in toddlers are most likely due to the fact that they still lack the means to communicate in more constructive ways. No adult group, not even violent youth gangs or hardened criminals, resorts to physical aggression 25% of the time.

Young children do not commit many violent crimes, especially as compared to young men. This is most likely due to the fact that young children can't do much physical damage, because they are smaller and weaker. Longitudinal studies show that serious aggressive and violent behavior peaks just past the age of puberty. After the age of 19, aggressive behaviors begin to decline. However, a relatively small subgroup of people continue their aggressive behavior after adolescence. These "career criminals" typically started violent offending in early life. The earlier the onset of aggressive or violent behavior is, the greater is the likelihood that it will continue later in life.

GENDER AND AGGRESSION

In all known societies, young men just past the age of puberty commit most of the violent crimes. Rarely women. Rarely older men. Rarely young children. Research shows that males are more physically aggressive than females, but this difference shrinks when people are provoked. Males are also more verbally aggressive than females, although the difference is much smaller. Females are often taught to be less direct in expressing aggression, so they often resort to more indirect forms of aggression. When it comes to relational aggression, for example, females are more aggressive than males. Relational aggression is defined as intentionally harming someone's relationships with others. Some examples of relational aggression include saying bad things about people behind their backs, withdrawing affection to get what you want, and excluding others from your circle of friends. Thus, rather than simply stating that males are more aggressive than females, it is more accurate to state that both sexes can behave aggressively, but they tend to engage in different types of aggression.

Aggression and Biased Social Information Processing

People do not passively respond to the things happening around them, but they actively try to perceive, understand, and attach meaning to these events. For example, when someone bumps a shopping cart into your knee in the local supermarket, you will likely do more than just feel the pain and take another carton of milk from the shelf. Instead, you will try to make sense of what happened to you (often this occurs automatically and so fast that you're not even aware of it): Why did this person bump me? Was it an accident or was it intentional?

According to the social information processing model, the way people process information in a

situation can have a strong influence on how they behave. In aggressive people, the processing of social information takes a different course than in nonaggressive people. For example, aggressive people have a hostile perception bias. They perceive social interactions as more aggressive than nonaggressive people do. Aggressive people pay too much attention to potentially hostile information and tend to overlook other types of information. They see the world as a hostile place. Aggressive people have a hostile expectation bias. They expect others to react to potential conflicts with aggression. Furthermore, aggressive people have a hostile attribution bias. They assume that others have hostile intentions. When people perceive ambiguous behaviors as stemming from hostile intentions, they are much more likely to behave aggressively than when they perceive the same behaviors as stemming from other intentions. Finally, aggressive people are more likely than others to believe that "aggression pays." In estimating the consequences of their behavior, they are overly focused on how to get what they want, and they do not focus much on maintaining good relationships with others. This is why aggressive people often choose aggressive solutions for interpersonal problems and ignore other solutions.

Intervening With Aggression and Violence

Most people are greatly concerned about the amount of aggression in society. Most likely, this is because aggression directly interferes with people's basic needs of safety and security. Accordingly, it is urgent to find ways to reduce aggression. Aggression has multiple causes. Unpleasant events, biased social information processing, violent media, and reduced self-control are just some of the factors that can increase aggression. The fact that there is no single cause for aggression makes it difficult to design effective interventions. A treatment that works for one individual may not work for another individual. One subgroup of extremely aggressive and violent people, psychopaths, is even believed to be untreatable. Indeed, many people have started to accept the fact that aggression and violence have become an inevitable, intrinsic part of society.

This being said, there certainly are things that can be done to reduce aggression and violence. Although aggression intervention strategies will not be discussed in detail here, there are two important general points to be made. First, successful interventions target as many causes of aggression as possible and attempt to tackle them collectively. Most often, these interventions are aimed at reducing factors that promote aggression in the direct social environment (family, friends), general living conditions (housing and neighborhood, health, financial resources), and occupation (school, work, spare time). Common interventions include social competence training, family therapy, parent management training (in children and juveniles), or a combination of these. Interventions that are narrowly focused at removing a single cause of aggression, however well conducted, are bound to fail.

Aggression is often stable over time, almost as stable as intelligence. If young children display excessive levels of aggression (often in the form of hitting, biting, or kicking), it places them at high risk for becoming violent adolescents and even violent adults. It is much more difficult to alter aggressive behaviors when they are part of an adult personality than when they are still in development. Thus, as a second general rule it is emphasized that aggressive behavior problems are best treated in early development, when they are still malleable. The more able professionals are to identify and treat early signs of aggression, the safer our communities will be.

DYNAMICS

In this article we will discuss about:- 1. Meaning and Definition of Group or Class 2. Types of Group

3. Group Guidance 4. Group Guidance Programmes 5. Leadership 6. Group Dynamics.

A collection of individuals forms a group whether there is interaction of the members or not. Without interaction the group is nearly an aggregation. Functional groups are characterised by common goals and inter stimulation and response among members, which serve as means for satisfying individual needs, and in which individuals enter into reciprocal relation with other group members, identify themselves with the group and are changed through membership in the group.

MEANING AND DEFINITION OF GROUP OR CLASS:

The class or group is a collection of individuals. The class may be regarded largely as an assemblage of individuals, each of whom be taught. It is also a social group, having a structure and an organization of forces which give it a measure of unity and coherence. The class may have a character of its own. The class has its norms of behaviour or performances. The class has a planned and well organized interaction. It has its own former leader i.e., teacher. The class as such may have a marked influence on its members.

THE GROUP HAS BEEN DEFINED AS FOLLOWS:

These definitions emphasize the following characteristics

1. It is an assemblage of individuals.
2. It has its own structure and organization of forces.
3. It has its own standard and norms of behaviour of performance.

TYPES OF GROUP:

Groups characterised by more or less continued intimate face-to-face association and cooperation are primary group, e.g., family; children's play groups, adolescent group, neighbourhood group.

1. SECONDARY GROUPS:

Secondary groups are special-interest groups, such as national, political religious, fraternal and professional groups. They don't depend upon face-to-face contact although there may be direct interaction among the members.

2. SOCIO & PSYCHO GROUPS:

In socio groups the purpose is largely impersonal, the members associating together to work on some common objective or problem. Labour union, editorial staff of a school year-book. The psycho group is more personal in nature and the members come together of their own accord primarily for the purpose of inter member association. The girls who meet regularly under the tree in the recess.

3. ORGANIZED AND UNORGANIZED GROUPS:

In the organized group the members play differentiated roles in relation to common goals. The degree of organisation may vary from loose, informal organization to a highly complex, formal one. But, if the group has a leader, it is an organization

In unorganized group each member functions more or less independently of the others. It is highly flexible, the members being free to develop their roles as they please.

4. IN GROUPS AND OUT GROUPS:

The groups to which an individual's belongs and toward which he feels a loyalty are in-groups. The ones toward which he feels neither loyalty nor sympathy and for which he may feel dislike, suspicion, opposition, fear, or even hatred are out-groups. A nation, race, religious sect, or neighbourhood group that is seen as inferior to one's and viewed with prejudice or hostility. SES, home and regional influences play an important part in the origin and propagation of such

prejudice.

GROUP GUIDANCE:

Guidance, whether on an individual or group basis, includes all those services that contribute to the individual understanding of himself—his attitudes, interests, abilities, his physical, mental and social maturity, and his personal and social needs for optimum development, achievement and life adjustment. It includes services that help each individual not only to gain self-understanding but also to develop skill in self-direction—

- a. in establishing suitable personal, educational and vocational goals,
- b. in planning desirable ways of pursuing these goals, and
- c. in developing standards of value consistent with his life-goals, so that he may be provided with criteria for the choice of experiences.

Group Guidance refers to any phase of guidance personal programme carried on with groups of individual rather than between counselor and counsellee or clinician and client in the face-to-face interview. It may include instruction in the classroom where the content is related to problems of self-appraisal, educational or vocational guidance, personal adjustment and interpersonal relationships. It includes many types of informal play or discussion groups, which often derive the double purpose of studying individuals in their interaction with others as well as helping them to work through certain difficulties and achieve new levels of adjustment.

GROUP GUIDANCE PROGRAMMES:

Group Guidance Programmes have been aimed at assistance in adjusting new school or college situations; improving study and learning methods; making new friends; improving social skills; learning to get along better with others; solving problems of interest and abilities and to make suitable educational and vocational plans meeting frustration wholesomely; and developing a workable philosophy of life-values to furnish criteria for the choice of life experiences.

THE PURPOSE OF GROUP GUIDANCE:

1. **To provide opportunities for learning essentials for self-direction with respect educational, vocational, and personal-social aspects of life through:**
 - a. Assistance in orientation in new school situations and in the best use of school opportunities.
 - b. Group study of problems of interpersonal relationships and assistance in choice of group experience in the school life that may modify both individual and group behaviour in socially acceptable ways.
 - c. Group study of problems of growing up, establishing adult adjustment and applying mental hygiene in living
 - d. Group study and application of sound methods of self-appraisal of attitudes, interests, abilities, personality and character trends and traits and personal-social adjustment.
 - e. Group study and application of efficiency methods in learning.
 - f. Group study about occasional life and problems of occasional adjustment and progress.
 - g. Assistance through groups in learning how to project suitable, long-range vocational plans.
 - h. Assistance through groups in learning how to project suitable, long-range educational plans.
 - i. Assistance in the development of discerning standards of value for making choices of experiences in various areas of living and the developing of growing philosophy of life.

2. TO PROVIDE OPPORTUNITY FOR THE THERAPEUTIC EFFECTS OF GROUP PROCEDURES THROUGH:

- a. The perspectives gained from the study of common human problem.
- b. The release of emotional tensions, increased insight into personality dynamics, and creative redirection of energy through group study of these common human problems in a permissive atmosphere.

3. To achieve some of the objectives of guidance more economically and some of more effectively than would be possible in a completely individualized approach.

To implement individual counselling to render it more effective through background study of common aspects of problems and the reduction or elimination of many emotional barriers to the discussion of unique aspects of common human problems

Guidance is a learning process for both the guidance worker and the individual, and this learning for both parties occurs through both counselling and group procedures.

LEADERSHIP IN A GROUP:

Effective leadership depends not so much upon specific qualities of personality as upon the working relationship of an individual within a group structure in which he acquires status through active participation and through demonstrating his capacity for helping the group to carry out cooperative tasks. Significant personal aspects of this capacity are intelligence, alertness to needs and motives of others, and insight into situations, further reinforced by such qualities as responsibility, initiative, persistence, and self-confidence.

The newer definition of leadership carries the implication that it may not be so much an attribute of individual as an aspect of organization, like authority, leadership appears to be determined by a system of inter-relationships and involves varying degrees of influence and responsibility. So, except in a completely authoritarian group, there would be varying degrees of influence and responsibility among members and therefore, varying degrees and kinds of leadership within the group.

One of the responsibilities of a guide is to work for the utilization by the group of its leadership potentials and to help all individuals to belong really to the group and to grow through contributing their best services to the group each member of a group can be helped to play both roles that is, of a leader and a follower, effectively.

Of course, some individuals will exert more influence on a group than others. Any member of a group exerts leadership to the extent that the stability of the group is modified by his presence. According to his viewpoint all member actions which help the group achieve its objectives are leadership functions in varying degrees, and it would be inconsistent to speak of the leader of a group. Sympathetic person and able to help members in a practical way who is intelligent relative to other group members; and who is consistent in performing his leadership functions.

Possession of particular traits is not enough to make a person a leader. He must be in a situation that permits him to make a contribution needed and perceived by the group as needed, and he must be perceived as being able to make such a contribution.

GROUP DYNAMICS:

In the field of group dynamics the term 'syntality' is used to describe for the group what is called personality for the individual. Syntality refers to all the interrelated attributes or independent variables by which a group may be defined. The terms used to describe this syntality of group are 'general ability', 'attitudes', 'performance' and 'morale'. Under morale we find such terms as 'synergy' referring to the sum total of the energy any group can command; 'doggedness' in meeting different situations and 'morality' and 'honesty'.

Synergy has two aspects- 'maintenance synergy' or the energy needed to keep the group intact; and 'effective synergy' or the energy available to move toward the achievement within the group goals. 'Group structure' refers to all the behaviour relationships within the group such as status gradients depending upon the varying roles of individual members * clique relationship.

According to Raymond Cattell "a group is a collection of organisms in which the existence of all (in their given relationship) is necessary to the satisfaction of certain individual needs in each". The term dynamics' as applied to groups refers to all the interacting forces within groups as they are organizing and operating to achieve their objectives which involve the whole field of sociometry and the nature of leadership.

The problem of first importance for the guidance leader is to study the group with a view to understanding its syntality and structure. This will involve studying the manners of the group both individually and collectively. Long range personal records of individual members of the group can be sought to answer many questions and also careful observation and study of the individual in action within the group and, of the total group in action.

To secure such information the teacher or guide must plan time for the study of personnel records and for the individual interviews. To study the individual and the groups in action, the leader must plan and initiate suitable activities at the start or be alert for suitable group initiative. These initial activities serve the double purpose of studying the individuals collectively and of helping to bring a real group with common interests and goals and an effective structure of inter-relationship into existence.

In many school programmes, the curriculum may provide for part areas of study in the guidance field at designated grade levels or in specific subject for example, educational or vocational planning, self-appraisal, understanding human behaviour, improving learning skills, getting along with others, or school citizenship.

Motion picture presentation of case studies, story-telling, individual or committee study, and reports on specific problems, dramatizations, lectures, informal discussion, and buzz sessions are among the multitude of possibilities at the command of a group leader. Such orienting activities, skillfully planned and executed, will create opportunities for the interaction of individuals in a way that will enable them to become acquainted with each other and will stimulate the development of a group structure of inter-relationship that can pave the way for real group organization and leadership.

Beyond these initial stages the guide should strive to be an integral part of a cohesive group with common interests in which each member senses that he has a respected place and a unique role to play in helping the group to reach its own group determined goals.

The behaviour of students in a class or in groups is the area of social psychology. This field of psychology deals the behaviour of an individual in groups. The concept of personality exists in the context of a group of social norms. The interpretation of behaviour of an individual is based on the norms. The norms are the average performance of the group. The standardization of psychological and educational tests is done by developing the norms of the concerned group.

THE SOCIAL PSYCHOLOGY MAY BE DEFINED AS:

1. "The social psychology is a scientific field that seeks to investigate the manner in which the behaviour, feelings or thoughts of an individual are influenced or determined by comparing with the group behaviours or the characteristics." -Baron and Byrne
2. "Educational psychology confines to the reactions of the learners or the student's classroom behaviours as a result of interaction with the teacher and among the students".

The social psychology is concerned with both type of group behaviours-positive or desirable behaviour and negative or undesirable behaviour of the individual. Educational psychology is concerned with the interaction of teacher and students mainly positive or desirable behaviour not the undesirable behaviour. The undesirable behaviour of the students are discouraged and desirable behaviours are reinforced or encouraged. The purpose is development of individual personality.

The standard or norms are development for the desirable behaviour of the group. A teacher has to deal usually a class or group of students. Therefore, it is very essential for a teacher to understand the group psychology rather than individual psychology. In planning and organizing his teaching he has to consider the norm of the group with regard to his level of teaching. The level of teaching is determined with help of class performance or level of students rather than individual level. The teacher must understand the dynamic of social behaviours of students to deal effectively.

Look no further than the headlines of any major newspaper to encounter the present difficulties, conflicts, and threats of human society. Modern humans are said to have socially evolved from more primitive life forms, yet we persist in the brutality of war, regularly experience or exhibit acts of intolerance, and sometimes whether unknowingly or as active participants, engage in many types of bias including gender and race discrimination. Despite this rather gloomy outlook, many continuously seek to achieve purpose through their personal lives and also through interactions with others. How might one achieve a sense of either when perceived threats, social dominance, and social identity are so intrinsically woven into our behavioral patterns? How do societal transgressions like racism or sexism persist in schools, neighborhoods, and workplaces? Behind these questions lies the fabric of social structures that manipulate motivational behavior in sometimes negative ways.

These social structures, when understood in the context of individual behavior in groups, may explain how one might be influenced by other to exhibit bias. The study of Intergroup Theories, which consist of Integrated Threat Theory, Social Identity Theory and Social Dominance Theory, serve to delineate these structures. By better understanding the research associated with these theories, their respective strengths and weaknesses, and their applications in the workplace, we can realize new methods of reducing both intra- and inter-organizational conflict and discrimination. If an individual takes the time to grasp these theories in concepts and gain a subsequent understanding

of the formation of these workplace groups it will help them do a better job and become a bigger asset to their employers, communities and families.

PERSONAL THREAT

Personal threat is when an individual believes his or her own resources or identity are under attack or risk and feel the need to protect. A personal threat can be triggered by something as simple as being categorized into a group (Ellemers et al., 2002; Hewstone, Rubin, & Willis, 2002). This type of threat is sometimes called "self-directed threat." For example, a person who received a negative review at work may quit as a way of protecting their personal identity from being attacked. Another example is when someone in a relationship does something wrong and decides to end the relationship in order to "save face" and protect their personal identity.

INTERGROUP THREAT

Intergroup threat is similar to personal threat, only the whole group is impacted rather than the individual. "As a general definition, intergroup threat occurs when one group's actions, beliefs, or characteristics challenge the goal attainment or well-being of another group" (Riek, Mania, & Gaertner, 2006). Intergroup threat has traditionally been depicted as competition for resources or status, but also occurs under conditions of social comparison (Brown, 1978; Shipley, 2008). The general idea is that members of one group perceive that another group will use up resources, and they will no longer be able to access those resources for themselves. These resources may be tangible, like money or material things or intangible like power or knowledge (Reik, Mania, & Gaertner, 2006). When resources are scarce, the group that feels threatened by the lack of resources finds itself motivated to compete for the resources in order to maintain its identity or to achieve its goals (Riek, Mania, & Gaertner, 2006). This competition promotes negative attitudes towards those in the group utilizing the resources (Aberson & Gaffney, 2008).

How does one determine which threat is applicable? Below are some characteristics that differentiate personal threats and intergroup threats.

NO THREAT

The absence of threat shows that an individual does not see any aspect of a situation as negative and does not react or act (Redmond, 2012). Without threat, individuals are not motivated to protect their resources. Instead they are motivated to engage in cooperative behaviors like gaining judgments that are more accurate of their group and contributing more efficient decision-making abilities (Redmond, 2012). These behaviors can be described as self-affirmation and group affirmation (Derks, Van Laar, & Ellemers, 2009). Self-affirmation is when the individual focuses on themselves rather than the group. Group affirmation is when the focus is on the group as a whole. Individuals from western cultures are more likely to engage in self-affirmation because in general, western cultures are more individualistic. Western cultures are more likely to focus on their personal identities rather than social identities (Redmond, 2012)

INTEGRATED THREAT THEORY COMPONENTS

There are several types of threats, which cause conflict between groups, including realistic threats, symbolic threats, intergroup anxiety and negative stereotyping. According to the Stephens, the Realistic and Symbolic threats both deal with threats to the interests of the group and "the degree [to which] you think your group's interests are being threatened, you will be prejudiced toward the other group" (Kendall, 1998). This differs from Intergroup Anxiety and Negative Stereotypes, which

enhance perceived threats by cultivating negative expectations and opinions of other groups (Redmond, 2012).

REALISTIC THREATS

These types of threats result from the perceptions held by the in-group, that the out-group "poses a risk to their safety, economy, politics, health or well-being" (Kendall, 1998). For example, when two groups within an organization are competing for the rights to complete a project for the president of the organization, and one group has more material resources than the other, the group with fewer resources will feel threatened because it feels there are barriers (the material resources), which will inhibit their ability to compete for the project.

Three studies were conducted to measure the antecedents of women's attitudes toward men using the integrated threat model. Four types of threats were hypothesized to produce negative attitudes toward men:

(1) realistic threat based on threats to women's political and economic power, (2) symbolic threat based on value differences, (3) intergroup anxiety experienced during social interaction with out-group members, and (4) negative stereotypes of men. Negative contact was hypothesized to increase the perception of all four threats as well as to affect attitudes directly. The findings suggest that symbolic threat, intergroup anxiety, and negative contact are the strongest predictors of negative attitudes toward men. Contrary to expectation, realistic threat may not be important to women's attitudes toward men.

The following graphic depicts the types of realistic threats as detailed by Kendall (1998).

SYMBOLIC THREATS

Symbolic threats refer to the beliefs and values of the group, which may be at risk. They primarily involve "perceived group differences in morals, values, standards, beliefs, and attitudes." (Oskamp, 2000, p.42) These threats affect the in-group paradigm, in that they affect the manner in which the group understands and interprets the world. The symbolic "threats arise, in part, because the in-group believes in the moral rightness of its system of values" (Oskamp, 2000, p.41). For example, if an in-group values a more protected approach to business, it might employ labor and materials purchased from its country of origin. As a result, a symbolic threat would involve competing firms that adopt a more global approach to business, especially if the costs of going global are substantially lower. This type of threat is found in many aspects of our lives; however, politics is the one that can be used to illustrate this threat the best. The different parties represent the different groups, and typically the major platforms the politicians run on are based on the morals, values and beliefs of that particular group.

THE CONSEQUENCES OF THREATS

Intergroup threats contribute to conflict because they influence behaviors, perceptions, and emotions. An appraisal of threat can evoke strong negative emotions, including that of fear, rage, anger, resentment, frustration, contempt and insecurity. In addition, perceptions of threat reduce emotional empathy for members of an out-group. The cognitive demands of dealing with threats causes a person to be in a sense preoccupied, in turn leading to poor decision-making. Intergroup threats can also influence the in-group's perception of themselves in comparison to the out-group. This perception can lead to believing that the once "powerful" in-group has now become vulnerable.

Negative intergroup perceptions and emotional biases contribute to the response in behavior towards a threat. The level of the behavioral response depends solely on the power of the threatened group. Higher power groups are not used to being threatened as their power generally isolates them from threat. Negative behavioral effects associated with these threats can impede peace and prolong reconciliation. When working in a group and threats and conflicts arise, communication comes to a screeching halt, and the group begins to lose focus of the goals that were initially set which can be detrimental. Communication is the key to all groups succeeding.

INTERGROUP ANXIETY

Intergroup anxiety refers to the "uneasiness and awkwardness in the presence of out-group members because of uncertainty about how to behave towards them" (Riek, Mania, & Gaertner, 2006, p. 341). This component of Integrated Threat Theory can be considered the strongest threat, as it deals with high emotions between groups. "People feel personally threatened in intergroup interactions because they are concerned about negative outcomes for the self, such as being embarrassed, rejected, or ridiculed" (Oskamp, 2000, p.40). The more anxiety the in-group feels towards the out-group, the more the in-group will anticipate a negative reaction from the out-group. The emotional anxiety can even occur in circumstances when the in-group incorrectly predicts the out-groups response to in-group values. The increased expectation of a negative reaction leads to a higher degree of prejudice and bias between members of the conflicting groups (Riek Mania, & Gaertner, 2006). Incidents that reinforce the negative feelings between groups can prolong and exacerbate the anxiety felt by both groups.

NEGATIVE STEREOTYPING

In the last component of Integrated Threat Theory, the in-group develops negative stereotypes about the out-group. Negative Stereotyping occurs when an individual's "beliefs about the characteristics of groups and the traits of group members" create "expectancies about the type of interactions that can be anticipated with out-group members" (Fiske, Gilbert, & Lindzey 2010). These stereotypes, like any other stereotypes, are based upon attributes the in-group believes the out-group to have (Kendall, 1998). These negative stereotypes towards the out-group are further enhanced as the degree of negative attitudes the in-group has towards the out-group increases (Reik, Mania, & Gaertner, 2006). Two reviews (Nguyen & Ryan, 2008; Walton & Cohen, 2003) concluded that people in the absence of threat make less stereotypical decisions and react in less biased ways in line with Ellemers et al.'s (2002) accuracy prediction.

The theory of accuracy in the absence of threat is supported by the theory of stereotype lift/boost. Stereotype lift/boost occurs when individuals perform better when they are reminded of a positive stereotype about themselves and their group membership (Walton & Cohen, 2003; Wraga, Duncan, Jacobs, Helt, & Church, 2006). When the performance threat is removed because the person is reminded of their stereotypical abilities, they perform at a higher level than when the stereotype is absent. An example of this is described as an Asian student performing well on a math exam compared to others when reminded of their ethnicity before taking the exam (Redmond, 2010)

RESEARCH SUPPORT ON INTEGRATED THREAT THEORY

Integrated threat theory is fairly new, and therefore does not have the extensive research that other motivational theories have. However, the field of research is growing, and of particular interest is its relevance to present societal issues. The research is valuable as it helps us understand the cognitive processes behind people's attitudes, beliefs, and behaviors. Some of the research topics the theory

can be applied to include:

- Religious intolerance
- Public attitudes toward immigration
- Racial profiling and stereotyping
- Public attitudes toward same gender relationships
- Support for feminist movements
- Diversity and a “national identity”
- Different motives in the workplace

Integrated Threat research has also shown its relevance with issues important to students. For example, one study looked at the cultural adjustment process required of students studying abroad (Fritz, M. V. et al 2008). This study examined the acculturation process of students living abroad and the effects of learning a new language, being separated from family and friends, and managing financial problems. The researchers looked at how Integrated Threat Theory addresses the issue of intergroup anxiety, where a student living abroad may experience feelings of being part of the “out” group.

Based on the study’s findings, the researchers were able to recommend specific program elements that would help foreign students adjust better to a new culture. More importantly, the study found that cultural sensitivity is the most important part of a successful program. A program designed to help Europeans adjust to studying in the U.S. would not be as helpful for a program designed for Asian students for example. Therefore, instead of grouping all foreign students together in a program to help them adjust, programs should be designed for specific cultural groups to help them adjust to their new environment.

One way to improve relations within a group experiencing conflict is to apply the Intergroup Contact Hypothesis, which was first proposed by Gordon Allport in 1954. His hypothesis suggests that under certain circumstances, having contact with members of different groups can reduce prejudice and intergroup conflict. However, the contact situation must include four major conditions in order to see positive effects. These conditions include equal status, intergroup cooperation, common goals, and support by social and institutional authorities. Research conducted in 1961, 1984, 1978, and 2007 has found positive contact has reduced prejudice against blacks, gays, the elderly, and the disabled. (The Inquisitive Mind, 2013)

Strengths and Weaknesses of Integrated Threat Theor

Condition	Meaning	Example	Evidence
Equal Status	Members of the contact situation should not have an unequal, hierarchical relationship.	Members should not have an employer/employee, or instructor/student relationship.	Evidence has documented that equal status is important both <i>prior</i> to (Brewer & Kramer, 1985) and <i>during</i> (Cohen & Lotan, 1995) the contact situation.
Cooperation	Members should work together in a non-competitive environment.	Students working together in a group project.	Aronson's 'jigsaw technique' structures classrooms so that students strive cooperatively (Aronson & Patnoe, 1967), and this technique has led to positive results in a variety of countries
Common Goals	Members must rely on each other to achieve their shared desired goal.	Members of a sports team.	hu and Griffey (1985) have shown the importance of common goals in interracial athletic teams who need to work together to achieve their goal.
Support by Social and Institutional Authorities	There should not be social or institutional authorities that explicitly or implicitly sanction contact, and there should be authorities that support positive contact.	There should not be official laws enforcing segregation.	Landis' (1984) work on the importance of institutional support in reducing prejudice in the military.

The student abroad study mentioned above is one example of Integrated Threat Theory's application to individual, but most research findings have focused on intergroup relationships and have found analyzing group conflict to be the theory's main strength. The original theory was found to have some weaknesses over the course of many studies and meta-analysis. First, there were problems inconceptualizing the types of threat and second, the number of antecedents and consequences was too limited.

To address these weaknesses the theory was revised in 2002 (Stephan& Renfro, 2002). The new theory now makes a distinction between threats to the in-group as a whole, and threats to individual members of the in-group, known as personal threats. In addition to this distinction, the antecedents of the theory were expanded upon. In the original theory there were four antecedents of threat; which included strong identification with the in-group, negative personal contact with the out-group, a history of conflict between the groups, and substantial disparities in status between groups.

In the revised theory, the following antecedents were added to the list: relations between groups, which factor in the size of the out-group relative to the in-group within the society, difference variable, including social dominance orientation and self esteem for factoring, cultural dimensions as this is a new domain of variables that can influence perceived threats and includes concepts like, individualism /collectivism, power distance, and uncertainty avoidance, and situational factors, which are variables that affect perceptions of threat like the setting, whether or not and how much the group interaction is structured or planned, and the nature of the interaction (cooperative vs. competitive)

The revised theory provides a much more comprehensive range of applications, but also requires more research to test and validate its concepts.

APPLICATION OF INTEGRATED THREAT THEORY IN THE WORKPLACE

Within an organization at any given time, many groups exist and may be in conflict with each other. An example of groups in conflict can include managers' priorities differing from employees' priorities. There will always be threats in workplaces because people will always have differing motives, needs, and ideas.

Organizational knowledge of Integrated Threat Theory and its implications on group interaction can be essential in preventing or minimizing group conflict. When managers and employees have differing priorities, knowledge of the integrated threats and understanding why groups feel threatened, will allow organizational leaders to recognize the conflict and then work with the two groups to set common goals and priorities to eliminate the competing priorities.

SOCIAL IDENTITY THEORY OVERVIEW

Social Identity Theory focuses on the relationship between self-concept and group behavior (Hogg & Terry, 2001). This theory explains that different aspects of individuals' personalities motivate them at different times, and that motivation from identity will be decided by the certain situation that the individual is in by relying on personal or social identity (PSU World Campus, L.8, 2012, p.5). Henri Tajfel proposed the Social Identity Theory as a result of work he had conducted in the 1970's concerning "categorization and social perception, intergroup behavior, and the pursuit of social psychological understanding of the causes of prejudice and intergroup conflict" (Abrams & Hogg, 1999). Tajfel et al (1971) attempted to identify the minimal conditions that would lead members of one group to discriminate in favor of the in-group to which they belonged and against another out-group.

Tajfel believed individuals were inconsistent when it came to how they behaved when they related to others in an intergroup setting, opposed to an interpersonal setting and sought to explain the behavior of people in-group situations (Abrams & Terry, 2001). Tajfel identified three components of social identity: self-conceptualization, group self-esteem, and commitment to the group, which when met, led a person to feel connected to their in-group. As a result, all other groups become out-groups and are rivals for status and resources as well as a source for comparison. This can lead to discrimination in favor of the in-group or against other out-groups, as well as stereotyping and prejudice when a perceived threat occurs (Redmond, 2009).

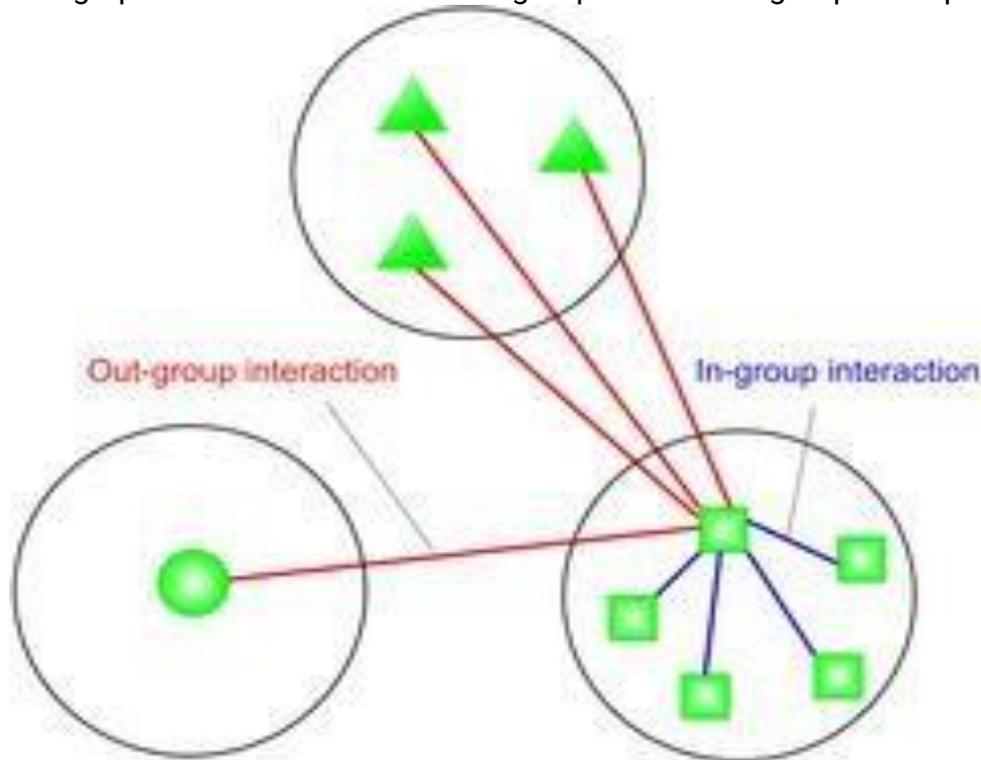
IN-GROUP FAVORITISM

An in-group can be described as the group of people with whom an individual categorizes

himself/herself. From a biological perspective, this behavior is inherent which means that people tend to help members from their own group rather than those from another. People can and will interact with out-groups, but use different strategies with both. Members of an in-group feel a sense of commitment to the group and gain greater esteem from their sense of belonging to the group (Redmond, 2012). In-group favoritism primarily exists to protect the group as individuals and as a group. By giving special treatment to group members, resources may be unavailable to other groups, and that group can maintain a higher status. Typically the larger the in-group, the more power they can impose on others. The overall idea is that members of the in-group stick together and give each other preferential treatment on professionally, financially, or socially

In-group favoritism can be explained through the average sports fan. Posten says "sports can work to increase self-esteem for a person by association and affiliation" (Posten, 1998, p.1). As a sports fan, you are extremely happy and proud after your team wins, as if you played the game yourself. Social Identity Theory also tells us that when our team loses, we will view that defeat positively so as to not defuse our self-esteem, since we have already identified with "our team" (Posten, 1998).

The graphic below illustrates the in-group and the out-group concept:

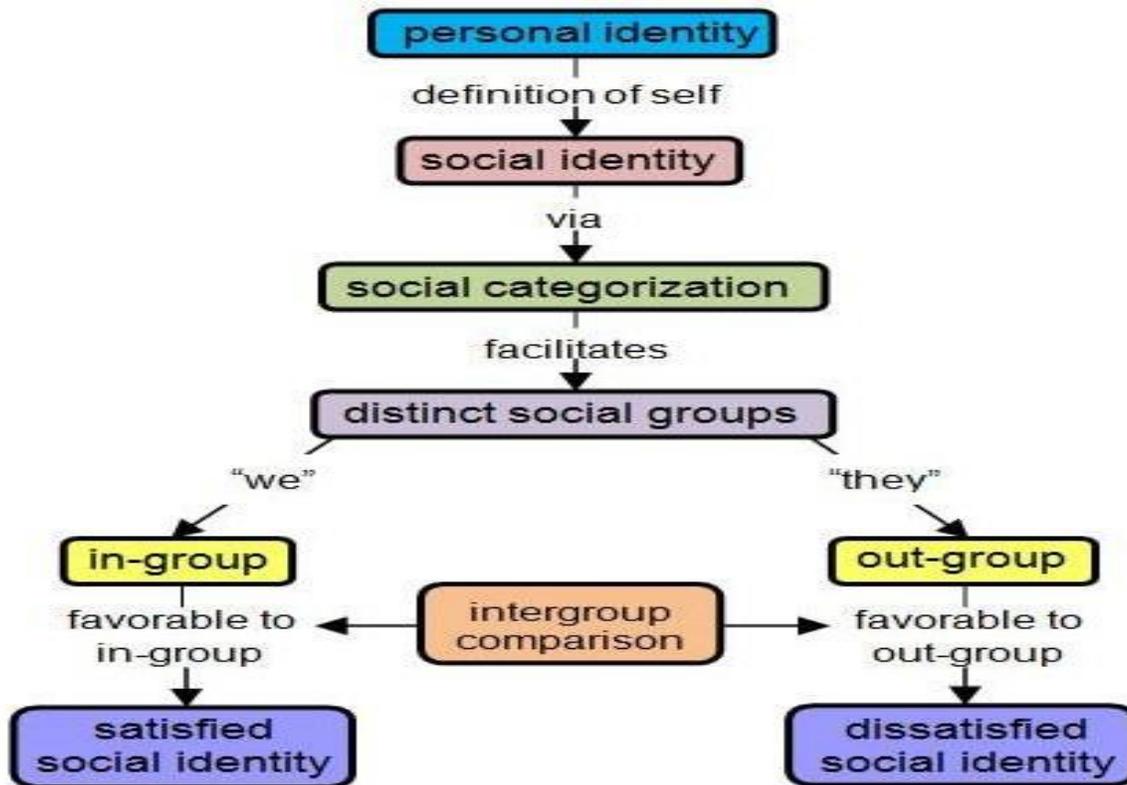


OUT-GROUP DEROGATION

An out-group can be described as any group outside of an individual's in-group and a group that can be a potential rival/competitor for resources (Redmond, 2012). Individuals in the out-group may be motivated to try and enter the in-group to gain access to limited or previously unavailable resources. Although once groups are formed, it can be hard to move to a new group and the person trying may face resentment from both groups. Members that are in the in-group can attempt to make members of the out-group look bad as to enhance their image and status.

Examples of In-Groups/Out-Groups Northern Ireland: Catholics/Protestants Rwanda: Hutus/ Tutsis Yugoslavia: Bosnians/ Serbs Germany: Jews/ Nazis Gender: Male/ Female Social Class: Upper /

Lower Class Social Identity Theory explains that every group has some type of social status that goes with its membership. This social status gives it value for the individuals that are members. Individual group members use the status from their membership in the group to gain and maintain self-esteem. The motivations to enhance self-esteem and gain status cause individuals to behave in ways that maintain the group and their memberships in the group. The better one's own group looks in comparison to other groups, the more status the group gains, and the more self-esteem it can provide for its members



SOCIAL IDENTITY THEORY COMPONENTS

According to Social Identity Theory, "social identity and intergroup behavior is guided by the pursuit of evaluative positive social identity through positive intergroup distinctiveness, which in turn is motivated by the need for positive self-esteem" (Hogg & Terry, 2001). In other words, their positive association with their in-group will affect a person's behavior when that association elevates their self-esteem and/or status. Furthermore, according to Michael Hogg (2006), social identity is motivated by self-enhancement and uncertainty reduction, which causes groups to "strive to be both better than and distinct from other groups" (pg. 120). Central to this theory are three components identified by Tajfel: self-categorization, group self-esteem, and group commitment.

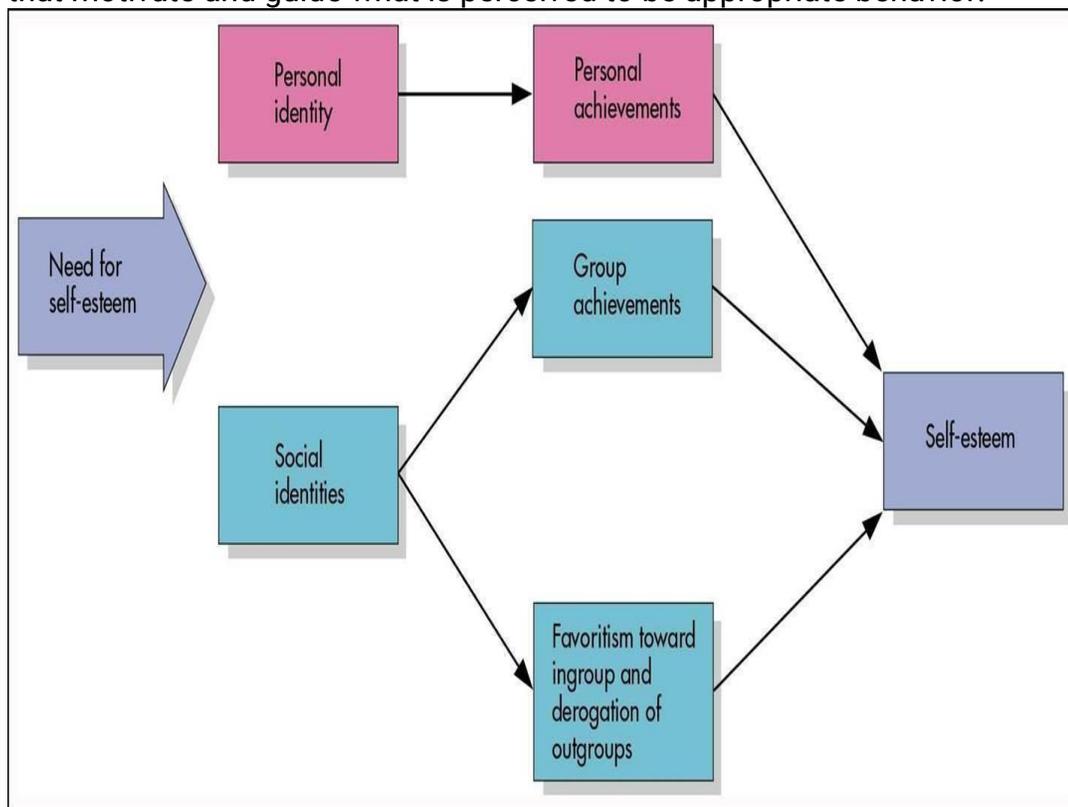
PERSONAL IDENTITY

Mayer, Greenbaum, Kuenzi, and Shteynberg (2009) state "personal identity consists of moral sensibility and conscience, and also a desire for achievement, mastery, and competence." Personal identity is the "combination of objective biosocial markers such as age, race, sex, and so on, and the personal life history of the individual" (Brewer & Gardner, 1996; Weigert et al., 1986). Personal identity is the aspects of one's self that make them unique and help define that individual (Brewer & Gardner, 1996). Individuals tend to be inconsistent when it comes to behavior in a social setting versus an individual setting. Social identity contrasts with personal identity because individuals will act

differently in social settings based on their perceived status within the group.

SELF-CATEGORIZATION

Social Identity Theory demonstrates that "the self is reflexive in that it can take itself as an object, and can categorize, classify, or name itself in particular ways in relation to other social categories or classifications" (Stets & Burke, 2000). This Identification process is known as self categorization and refers to a person's belief that they belong to a group. A person must categorize or identify him or herself as a member of a group in order to have their self-esteem elevated through association with the group. According to this theory, categorization "sharpens intergroup boundaries by producing group- distinctive stereotypical and normative perceptions and actions and assigns people, including self, to the contextually relevant category" (Hogg & Terry, 2001). In addition, self-categorization can reduce "uncertainty about themselves and others and about how they and others may or ought to behave in specific social contexts" (Hogg & Terry, 2001). In other words, we are able to find out specifics about ourselves and others as well as the appropriate behaviors associated with the group(s) in which we belong. "The core of an identity is the categorization of the self as the occupant of a role" (Stets & Burke, 2000). By assigning roles to individuals that are self-categorized as being part of a group, individuals can derive meanings and expectations associated with their roles, and as a result, are able to create value- based standards that motivate and guide what is perceived to be appropriate behavior.



Group Self-Esteem

Group self-esteem refers to the positive self-esteem or self-identity gained through membership in a group. "The relationship between intergroup differentiation and self-esteem should be assessed by using a measure of esteem at the level of the group or collective, rather than by using measures that address personal self-esteem" (De Cremer, Van Vugt, & Sharp, 1999). In order to categorize one's self as a member of a group, membership in the group must hold some value for the person such

as improvement in their status or positive personal identity through the association with the group. An example of this would be how memberships in sororities and fraternities constitute high social status among peers, and lifelong association with these groups produces additional personal identity benefits, including self-esteem.

The theory suggests that people have a need to "see themselves in a positive light in relation to relevant others" (Hogg & Terry, 2001) and that this can be achieved in a group context through "making comparisons between in-group and relevant out-groups in ways that favor the in-group" (Hogg & Terry, 2001). "The better one's group looks in comparison to other groups, the more status the group gains, and the more self-esteem it can provide for its members" (Morton, Postmes, Haslam, & Hornsey, 2009; Tajfel & Turner, 1979, 1986). "Self esteem and status are the main reasons that social identity is proposed to motivate individuals. But also remember that a person must also first describe him or herself as part of the group (self-categorization) and want to be part of the group (commitment)" (Redmond, 2010).

SOCIAL IDENTITY THEORY

Henri Tajfel's greatest contribution to psychology was social identity theory. Social identity is a person's sense of who they are based on their group membership(s) Tajfel (1979) proposed that the groups (e.g. social class, family, football team etc.) which people belonged to were an important source of pride and self-esteem. Groups give us a sense of social identity: a sense of belonging to the social world.

We divided the world into "them" and "us" based through a process of social categorization (i.e. we put people into social groups).

Henri Tajfel proposed that stereotyping (i.e. putting people into groups and categories) is based on a normal cognitive process: the tendency to group things together. In doing so we tend to exaggerate:

1. the differences between groups
2. the similarities of things in the same group.

This is known as in-group (us) and out-group (them). The central hypothesis of social identity theory is that group members of an in- group will seek to find negative aspects of an out-group, thus enhancing their self-image.

Prejudiced views between cultures may result in racism; in its extreme forms, racism may result in genocide, such as occurred in Germany with the Jews, in Rwanda between the Hutus and Tutsis and, more recently, in the former Yugoslavia between the Bosnians and Serbs.

Examples of In-groups and Out-groups

- Northern Ireland: Catholics – Protestants
- Rwanda: Hutus and Tutsis
- Yugoslavia: the Bosnians and Serbs
- Germany: Jews and the Nazis
- Politics: Labor and the Conservative
- Football: Liverpool and Man Utd
- Gender: Males and Females
- Social Class: Middle and Working Classes

SOCIAL IDENTITY THEORY STAGES

Tajfel and Turner (1979) proposed that there are three mental processes involved in evaluating others as “us” or “them” (i.e. “in-group” and “out-group”). These take place in a particular order.

CATEGORIZATION

The first is categorization. We categorize objects in order to understand them and identify them. In a very similar way we categorize people (including ourselves) in order to understand the social environment. We use social categories like black, white, Australian, Christian, Muslim, student, and bus driver because they are useful.

If we can assign people to a category then that tells us things about those people, and as we saw with the bus driver example, we couldn't function in a normal manner without using these categories; i.e. in the context of the bus.

Similarly, we find out things about ourselves by knowing what categories we belong to. We define appropriate behavior by reference to the norms of groups we belong to, but you can only do this if you can tell who belongs to your group. An individual can belong to many different groups.

Social Identification

In the second stage, social identification, we adopt the identity of the group we have categorized ourselves as belonging to. If for example you have categorized yourself as a student, the chances are you will adopt the identity of a student and begin to act in the ways you believe students act (and conform to the norms of the group).

There will be an emotional significance to your identification with a group, and your self-esteem will become bound up with group membership.

SOCIAL COMPARISON

The final stage is social comparison. Once we have categorized ourselves as part of a group and have identified with that group we then tend to compare that group with other groups. If our self-esteem is to be maintained our group needs to compare favorably with other groups.

This is critical to understanding prejudice, because once two groups identify themselves as rivals, they are forced to compete in order for the members to maintain their self-esteem.

Competition and hostility between groups is thus not only a matter of competing for resources (like in Sherif's Robbers Cave) like jobs but also the result of competing identities.

RELATIVE DEPRIVATION AND DEPRIVATION THEORY

Relative deprivation is formally defined as an actual or perceived lack of resources required to maintain the quality of life (e.g. diet, activities, material possessions) to which various socioeconomic groups or individuals within those groups have grown accustomed, or are considered to be the accepted norm within the group.

Key Takeaway

- Relative deprivation is the lack of resources (e.g. money, rights, social equality) necessary to maintain the quality of life considered typical within a given socioeconomic group.

- Relative deprivation often contributes to the rise of social change movements, such as the U.S. Civil Rights Movement.
- Absolute deprivation or absolute poverty is a potentially life-threatening situation that occurs when income falls below a level adequate to maintain food and shelter.

In simpler terms, relative deprivation is a feeling that you are generally “worse off” than the people you associate with and compare yourself to. For example, when you can only afford a compact economy car but your co-worker, while getting the same salary as you, drives a fancy luxury sedan, you may feel relatively deprived.

RELATIVE DEPRIVATION THEORY DEFINITION

As defined by social theorists and political scientists, relative deprivation theory suggests that people who feel they are being deprived of something considered essential in their society (e.g. money, rights, political voice, status) will organize or join social movements dedicated to obtaining the things of which they feel deprived. For example, relative deprivation has been cited as one of the causes of the U.S. Civil Rights Movement of the 1960s, which was rooted in Black Americans' struggle to gain social and legal equality with white Americans. Similarly, many gay people joined the same-sex marriage movement in order to acquire the same legal recognition of their marriages enjoyed by straight people.

In some cases, relative deprivation has been cited as a factor driving incidents of social disorder like rioting, looting, terrorism, and civil wars. In this nature, social movements and their associated disorderly act can often be attributed to the grievances of people who feel they are being denied resources to which they are entitled.

Relative Deprivation Theory History Development of the concept of relative deprivation is often attributed to American sociologist Robert K. Merton, whose study of American soldiers during World War II revealed that soldiers in the Military Police were far less satisfied with their opportunities for promotion than regular GIs.

In proposing one of the first formal definitions of relative deprivation, British statesman and sociologist Walter Runciman listed four required conditions:

- A person does not have something.
- That person knows other people who have the thing.
- That person wants to have the thing.
- That person believes they have a reasonable chance of getting the thing.

Runciman also drew a distinction between “egoistic” and “fraternalistic” relative deprivation. According to Runciman, egoistic relative deprivation is driven by an **individual's** feelings of being treated unfairly compared to others in their group. For example, an employee who feels they should have gotten a promotion that went to another employee may feel egoistically relatively deprived. Fraternalistic relative deprivation is more often associated with **massive group social movements** like the Civil Rights Movement.

Relative Versus Absolute Deprivation

Relative deprivation has a counterpart: absolute deprivation. Both of these are measures of poverty in a given country. Absolute deprivation describes a condition in which household income falls below a level needed to maintain the basic necessities of life, such as food and shelter.

Meanwhile, relative deprivation describes a level of poverty at which household income drops to a certain percentage below the country's median income. For example, a country's level of relative poverty could be set at 50 percent of its median income.

Absolute poverty can threaten one's very survival, while relative poverty may not but is likely to limit one's ability to participate fully in their society. In 2015, the World Bank Group set the worldwide absolute poverty level at \$1.90 per day per person based on purchasing power parities (PPP) rates.

CRITIQUES OF RELATIVE DEPRIVATION THEORY

Critics of relative deprivation theory have argued that it fails to explain why some people who, though deprived of rights or resources, fail to take part in social movements meant to attain those things. During the Civil Rights Movement, for example, Black people who refused to participate in the movement were derisively referred to as "Uncle Toms" by other Black people in reference to the excessively obedient enslaved person depicted in Harriet Beecher Stowe's 1852 novel "Uncle Tom's Cabin."

However, proponents of relative deprivation theory argue that many of these people simply want to avoid the conflicts and life difficulties they might encounter by joining the movement with no guarantee of a better life as a result.

Additionally, relative deprivation theory does not account for people who take part in movements that do not benefit them directly. Some examples include the animal rights movement, straight and cis gendered people who march alongside LGBTQ+ activists, and wealthy people who demonstrate against policies that perpetuate poverty or income inequality. In these cases, participants are believed to act more out of a sense of empathy or sympathy than feelings of relative deprivation.

REALISTIC CONFLICT THEORY

Definition and Examples of Realistic Conflict Theory

The **realistic conflict theory** states that whenever there are two or more groups that are seeking the same limited resources, this will lead to conflict, negative stereotypes and beliefs, and discrimination between the groups. The conflict can lead to increasing animosity toward the groups and can cause an ongoing feud to develop.

Conversely, conflict, negative stereotypes and beliefs, and discrimination between groups can potentially be reduced in situations where two or more groups are seeking to obtain some superordinate goals. **Superordinate goals** are mutually-desirable goals that cannot be obtained without the participation of two or more groups.

Because of its emphasis on group behaviors and conflict, the realistic conflict theory is also referred to as the **realistic group conflict theory**.

THE ROBBER'S CAVE EXPERIMENT

One of the earliest examples of realistic conflict theory is the Robber's Cave experiment conducted by social psychologist Muzafer Sherif in the 1950s. Sherif conducted a field experiment at Robber's Cave State Park in Oklahoma using 22 adolescent males. Each of the 22 participants was 12 years old, came from a 2-parent home, and was from a white middle-class background. None of the participants knew each other before the experiment. Sherif divided the males into two separate

groups: the Eagles and the Rattlers Neither of the groups was aware of the other's existence during the first stage of the experiment. During the first stage, the participants were involved in several activities with their group members such as hiking and swimming. These activities allowed participants to form attachments with their group and create their own group culture, norms, and expectations.

Once the participants had become attached to their own groups, Sherif introduced the groups to each other and arranged for competitive games and other conflicts between the groups. For example, one of the competitive games required the Eagles and the Rattlers to play each other in a baseball game. The winning group received a trophy and individual medals for the group members, while the losing group received nothing.

Sherif began to notice that the groups were calling each other names and teasing each other. However, as the competitive games continued, the groups became increasingly hostile. For example, the Eagles set the Rattlers' flag on fire and the Rattlers destroyed the Eagles' cabin. Eventually, the groups became so hostile with one another that they had to be physically separated.

Remember that the participants were 22 well-adjusted males. They were not criminals, nor did they have a history of aggressive or destructive behavior. However, once conflict and competition were introduced, their behaviors became discriminatory and hostile.

OTHER EXAMPLES OF REALISTIC CONFLICT THEORY

Suppose that the Eagles and Rattlers wanted to go on a hiking trip. The Eagles had all of the required hiking gear and the Rattlers had the required hiking maps and boots. The two groups would have to share their resources and cooperate with each other in order to make the hiking trip happen - a superordinate goal. Without cooperation, neither group would be able to go on the hiking trip. This cooperation might lead to positive communication between the two groups and could repair the relationship between the two.

ACTIVITY 1:

You read about the Robber's Cave experiment in the lesson. In this experiment, both groups consisted of 12-year-old Caucasian boys. The researcher was able to overcome inter-group conflict by presenting a superordinate goal. What do you think would happen if the groups were not equivalent to begin with? What if one group was boys and the other group was girls? What if one group was Hispanic teenagers and the other group was African American teenagers? Would the result have been the same as it was with two groups of Caucasian boys? Would a superordinate goal bring the groups together successfully as it did in the experiment? Write a two to three paragraph opinion paper discussing these issues.

ACTIVITY 2:

Think of a time that you have had to compete with a friend for a limited resource. For example, perhaps you competed for first place in a gymnastics or tennis competition. Did this competition affect your friendship? Did you disparage the other person in your head in terms of ability or personality? How were you able to get your friendship back on track after one person won the limited resource and the other person lost? Write a journal entry reflecting on your experience with limited resources against a friend.

ACTIVITY 3

The world is full of groups that are different in demonstrable ways. People have different skin colors, different religions, different languages, and different modes of dress. Prejudice and discrimination exist often due to a perceived competition for resources, or simply because sometimes people think that "different" means "wrong" or "worse." Do you think it is possible for a superordinate goal to bring all these disparate people together such that they feel unified in achieving a goal? To use an unrealistic and extreme example, what if aliens landed on earth, intending to harm humans? Would humans all come together to work to defeat the aliens, eliminating discrimination and prejudice, or is the superordinate goal not powerful enough to overcome deeply rooted differences between people? Write an essay describing the power or superordinate goals, or lack thereof, when it comes to making diverse people feel on the same "side."

BALANCE THEORY

Balance Theory Definition

Balance theory describes the structure of people's opinions about other individuals and objects as well as the perceived relation between them. The central notion of balance theory is that certain structures between individuals and objects are balanced, whereas other structures are imbalanced, and that balanced structures are generally preferred over imbalanced structures. Specifically, balance theory claims that unbalanced structures are associated with an uncomfortable feeling of negative affect, and that this negative feeling leads people to strive for balanced structures and to avoid imbalanced structures. An example for a balanced structure is when your best friend also likes your favorite rock band; an example for an imbalanced structure is when your best friend dislikes your favorite rock band. According to balance theory, the first case makes you feel good, whereas the second case creates an uncomfortable tension.

THEORETICAL ASSUMPTIONS

The original formulation of balance theory was designed to describe the pattern of relations between three individuals. Such relation patterns between three objects or individuals are often referred to as "triadic" relations. From a general perspective, a triadic relation between three individuals includes (a) the relation between a first person A and a second person O, (b) the relation between the second person O and a third person X, and (c) the relation between the first person A and the third person X (also described as A-O-X triad). In addition, it is assumed that the specific relations between two individuals can be positive (i.e., the two individuals like each other) or negative (i.e., the two individuals dislike each other). According to balance theory, a triad is balanced when it includes either no or an even number of negative relations. In contrast, a triad is imbalanced when it includes an odd number of negative relations. For example, the resulting triad of relations between Peter, John, and Paul would be balanced if (a) Peter likes John, John likes Paul, and Peter likes Paul; (b) Peter likes John, John dislikes Paul, and Peter dislikes Paul; (c) Peter dislikes John, John likes Paul, and Peter dislikes Paul; or (d) Peter dislikes John, John dislikes Paul, and Peter likes Paul. However, the resulting triad would be imbalanced if (a) Peter dislikes John, John likes Paul, and Peter likes Paul; (b) Peter likes John, John dislikes Paul, and Peter likes Paul; (c) Peter likes John, John likes Paul, and Peter dislikes Paul; or (d) Peter dislikes John, John dislikes Paul, and Peter dislikes Paul.

Even though balance theory was originally developed to explain patterns of interpersonal relations, it has also been applied to study attitudes and opinions about objects. For example, a triad including Sarah, Alice, and country music would be balanced if Sarah likes Alice, Alice likes country music, and Sarah also likes country music. However, the resulting triad would be imbalanced if Sarah

likes Alice, Alice likes country music, but Sarah dislikes country music.

Over and above these assumptions for personal sentiments, balance theory assumes that a positive relation can also result from the perception that two objects or individuals somehow belong together. Conversely, a negative relation can result from the perception that two objects or individuals do not belong together. Such kinds of relations are typically called "unit relations." Positive unit relations can result from any kind of closeness, similarity, or proximity, such as membership in the same soccer team, similar hair style, or same ethnic background. In contrast, negative unit relations can result from distance, dissimilarity, or distinctness, such as membership in different soccer teams, different hair style, or different ethnic background.

EVIDENCE

The distinction between balanced and imbalanced triads has been shown to have important implications for a variety of different domains. First, research has shown that the uncomfortable feeling associated with imbalanced patterns influences the formation of new attitudes. Specifically, it has been demonstrated that newly formed attitudes usually complete triadic relations in a manner such that the resulting triad is balanced rather than imbalanced. For example, if Sarah learns that a yet unknown individual is liked by her friend Alice, Sarah will form a positive attitude toward this individual. However, if Sarah learns that the same individual is disliked by her friend Alice, Sarah will form a negative attitude toward this individual.

Second, research has demonstrated a general superiority in memory for balanced as compared to imbalanced information. For instance, people show higher accuracy in recalling balanced patterns such as "Peter likes John, John dislikes Paul, and Peter dislikes Paul." However, people show lower accuracy in recalling imbalanced patterns such as "Peter likes John, John dislikes Paul, and Peter likes Paul." This difference in memory performance is even more pronounced when the triad includes the perceiver (e.g., "I like John, John dislikes Paul, and I dislike Paul").

Third, balance principles have been shown to have important implications for people's identity and the way people feel about themselves. Research in this area has shown that mental associations between the self and a particular group, evaluations of this group, and personal evaluations of oneself typically show patterns that can be described as balanced rather than imbalanced. For instance, if a Black person has a strong mental association between the self and the category Black, and in addition shows a positive evaluation of the category Black, this person will also exhibit a positive self-evaluation (i.e., "I'm Black, Black is good, therefore I'm good"). However, if a Black person has a strong mental association between the self and the category Black, but shows a negative evaluation of the category Black, this person will likely exhibit a negative self-evaluation (i.e., "I'm Black, Black is bad, therefore I'm bad"). According to balance theory, this transfer of evaluations is due to the inherent "unit" between the self and the category Black.

ADAMS' EQUITY THEORY

Adams' Equity Theory calls for a fair balance to be struck between an employee's inputs (hard work, skill level, acceptance, enthusiasm, and so on) and an employee's outputs (salary, benefits, intangibles such as recognition, and so on).

According to the theory, finding this fair balance serves to ensure a strong and productive relationship is achieved with the employee, with the overall result being contented, motivated

employees.

UNDERSTANDING THE THEORY

Adams' Equity Theory is named for John Stacey Adams, a workplace and behavioral psychologist, who developed his **job motivation theory** in 1963. Much like many of the more prevalent theories of motivation (such as **Maslow's Hierarchy of Needs** and **Herzberg's Two-Factor Theory**), Adams' Equity Theory acknowledges that subtle and variable factors affect an employee's assessment and perception of their relationship with their work and their employer.

The theory is built on the belief that employees become de-motivated, both in relation to their job and their employer, if they feel as though their inputs are greater than the outputs. Employees can be expected to respond to this in different ways, including de-motivation (generally to the extent the employee perceives the disparity between the inputs and the outputs exist), reduced effort, becoming disgruntled, or, in more extreme cases, perhaps even disruptive.

HOW TO APPLY THE ADAMS' EQUITY THEORY

It is important to also consider the Adams' Equity Theory factors when striving to improve an employee's job satisfaction, motivation level, etc., and what can be done to promote higher levels of each.

To do this, consider the balance or imbalance that currently exists between your employee's inputs and outputs, as follows:

Inputs typically include:

- Effort.
- Loyalty
- Hard work.
- Commitment.
- Skill.
- Ability.
- Adaptability.
- Flexibility.
- Acceptance of others.
- Determination.
- Enthusiasm.
- Trust in superiors.
- Support of colleagues.
- Personal sacrifice. Outputs typically include:
- Financial rewards (such as salary, benefits, perks).
- Intangibles that typically include:
 - Recognition.
 - Reputation.
 - Responsibility.
 - Sense of achievement.
 - Praise.
 - Stimulus.
- Sense of advancement/growth

- Job security.

-

While obviously many of these points can't be quantified and perfectly compared, the theory argues that managers should seek to find a fair balance between the inputs that an employee gives, and the outputs received.

And according to the theory, employees should be content where they perceive these to be in balance.

TIP:

This is similar to Frederick Herzberg's **Motivation/Hygiene Theory**. While Adams' Equity Theory obviously has a strong element of truth to it, it's probably fair to say that Herzberg's Motivation/Hygiene Theory has greater motivational significance.

KEY POINTS

Much like the five levels of needs determined by Maslow and the two factors of motivation as classified by Herzberg (intrinsic and extrinsic), the Adams' Equity Theory of motivation states that positive outcomes and high levels of motivation can be expected only when employees perceive their treatment to be fair. An employee's perception of this may include many factors (see outputs above). The idea behind Adams' Equity Theory is to strike a healthy balance here, with outputs on one side of the scale; inputs on the other – both weighing in a way that seems reasonably equal.

If the balance lies too far in favor of the employer, some employees may work to bring balance between inputs and outputs on their own, by asking for more compensation or recognition. Others will be demotivated, and still others will seek alternative employment.

SOCIAL EXCHANGE THEORY

Social exchange theory proposes that social behavior is the result of an exchange process. The purpose of this exchange is to maximize benefits and minimize costs. According to this theory, developed by sociologist George Homans, people weigh the potential benefits and risks of social relationships. When the risks outweigh the rewards, people will terminate or abandon that relationship.

Most relationships are made up of a certain amount of give-and-take, but this does not mean that they are always equal. Social exchange suggests that it is the valuing of the benefits and costs of each relationship that determine whether or not we choose to continue a social association.

COSTS VS. BENEFITS

Costs involve things that you see as negatives such as having to put money, time, and effort into a relationship. For example, if you have a friend that always has to borrow money from you, then this would be seen as a high cost.

The benefits are things that you get out of the relationship such as fun, friendship, companionship, and social support. Your friend might be a bit of a freeloader, but bring a lot of fun and excitement to your life. As you are determining the value of the friendship, you might decide that the benefits outweigh the potential costs.

Social exchange theory suggests that we essentially take the benefits and subtract the costs in order

to determine how much a relationship is worth. Positive relationships are those in which the benefits outweigh the costs while negative relationships occur when the costs are greater than the benefits. Expectations and Comparison Level

Cost-benefit analysis plays a major role in the social exchange process, but so do expectations. As people weigh benefits against the costs, they do so by establishing a comparison level that is often influenced by past experiences. If you have always had poor friendships, your comparison levels at the start of a relationship will be lower than a person who has always had supportive and caring friends.

For example, if your previous romantic partner showered you with displays of affection, your comparison level for your next relationship is going to be quite high when it comes to affection. If your next romantic partner tends to be more reserved and less emotional, that person might not measure up to your expectations.

EVALUATING THE ALTERNATIVES

Another aspect of the social exchange process involves looking at the possible alternatives. After analyzing the costs and benefits and contrasting these against your comparison levels, you might start to look at possible alternatives.

The relationship might not measure up to your comparison levels, but as you survey the potential alternatives, you might determine that the relationship is still better than anything else that is available. As a result, you might go back and reassess the relationship in terms of what may now be a somewhat lower comparison level.

THE HONEYMOON PHASE

The length of a friendship or romance can also play a role in the social exchange process. During the early weeks or months of a relationship, often referred to as the "honeymoon phase," people are more likely to ignore the social exchange balance. Things that would normally be viewed as high cost are dismissed, ignored, or minimized, while potential benefits are often exaggerated. When this honeymoon period finally comes to an end, there will often be a gradual evaluation of the exchange balance. Downsides will become more apparent and benefits will start to be seen more realistically. This recalibration of the exchange balance might also lead to the termination of the relationship if the balance is tipped too far toward the negative side.

APPLIED SOCIAL PSYCHOLOGY

Applied Social Psychology Definition

Applied social psychology can be defined as using social psychological theories, principles, research findings, and experimental methods to understand social issues and to offer real-world solutions for a variety of social problems. As a discipline, applied social psychology functions on the premise that social problems are, at their heart, caused by human behavior. To understand and change these problem behaviors, applied social psychologists conduct a scientific examination of individuals' thoughts, feelings, and behaviors as they pertain to a variety of social influences. Through their research, applied social psychologists hope to offer practical suggestions for improving human social behavior in areas ranging from workplace productivity to safer sexual activity.

APPLIED SOCIAL PSYCHOLOGY HISTORY AND BACKGROUND

While an earlier generation of psychologists had been predominantly interested in the structure and measurement of mental tasks in the laboratory, the 20th century saw a substantial increase in researchers advocating the application of theories outside the laboratory. In 1903, experimental psychologist Walter Dill Scott wrote *The Theory and Practice of Advertising*, suggesting that consumer habits could be influenced by emotional suggestions. In 1908, psychologist Hugo Munsterberg defined applied psychology as research adjusted to fit the problems encountered in everyday life. In works on industrial psychology, advertising, and education, Munsterberg, Scott, and others began exploring the possibilities of an applied psychology. In 1917, psychologist G. S. Hall founded the *Journal of Applied Psychology* to further explore the potential of this new field.

By the 1920s, there was an undeniable enthusiasm for applied research in the psychological community, despite its reputation as an “undignified” pursuit. In addition to the new challenges it presented, applied research was also attractive because private corporations often provided better salaries than did academic institutions. John B. Watson, former American Psychological Association president and one of the founders of modern behaviorism, began a successful career at the J. Walter Thompson advertising firm after being fired from Johns Hopkins University in 1920. Watson was able to put psychological principles into practice with such advertising industry standards as expert and celebrity testimonials and focus group research. He was promoted to vice president in only 4 years and was eventually honored for his achievements by the American Psychological Association. Even those psychologists who stayed in traditional laboratories found that it was easier to justify lab materials and costs if their research had the potential for application.

The work of Kurt Lewin (1890-1947) marks the beginning of modern applied social psychology. Lewin, best known for his field theory suggesting that behavior is a function of an individual's personality and his or her environment, proposed that social psychologists should engage in what he called action research. A social activist himself, Lewin believed that social issues should inspire social psychological research. This research could then be used to provide solutions for social problems. Lewin's action research sought to define a social problem, recommend countermeasures, and test the effectiveness of those countermeasures through community involvement, surveys, case studies, and controlled experiments. To this end, Lewin formed several organizations to engage in action research, including the Society for the Psychological Study of Social Issues, the Research Center for Group Dynamics, the Commission on Community Interrelations, and the National Training Laboratories. These groups studied interracial housing, ingroup loyalty, and leadership styles, establishing Lewin as one of the foremost proponents of combined applied and theoretical social psychology in the history of psychology.

As social psychology sought greater acceptance as a science in the 1950s and 1960s, action research in the field became less popular and was replaced by basic academic social psychology. It was not until the late 1960s and 1970s, while American society was undergoing radical transformations as a result of the civil rights movement, the Vietnam War, and the Watergate scandal, that social psychologists returned to the field in an attempt to understand and explain what was happening around them. Through the 1970s and 1980s, social psychologists debated if applied research could inform public policy. If so, many felt that the researchers themselves must present and explain their findings to policymakers or risk dangerous misinterpretation of their work.

Applied social psychology has been growing in prestige since the 1980s. With applications ranging from improving the criminal justice system to informing education and health issues, the last few decades have seen substantial increases in nontraditional funding sources. While applied social psychological research continues within academic institutions, private and government grants, as

well as full-time research positions within large corporations, have allowed researchers the flexibility and opportunity to study a diverse array of social phenomena

UNIQUE FEATURES OF APPLIED SOCIAL PSYCHOLOGY

While research in basic social psychology often begins with scientific curiosity, work in applied social psychology typically starts with the identification of a specific social problem, such as teen pregnancy or hate crimes. Applied social psychologists seek to understand and treat these social maladies through the application of the theories and methods of social psychology. While basic social psychologists attempt to isolate the causal relationships between a small number of specific variables that can be carefully controlled in the lab, applied social psychologists work to identify and predict large-scale effects that can be used to design and implement social programs. Real social issues rarely involve only one or two psychological variables. Therefore, it is often useful for applied social psychologists to consider broad combinations of psychological principles when attempting to understand a social issue. It is also common for applied social psychologists to adopt an interdisciplinary approach to their work, incorporating economic, sociological, and political perspectives.

Within the laboratory, social psychologists are generally able to conduct precise and carefully controlled experimental manipulations to test their hypotheses. Within communities and businesses, applied researchers often work in unpredictable and unrestricted environments, relying on less-precise research techniques such as surveys, self-reports, and rough “before and after” evaluations. Often at the mercy of corporate or government sponsors, applied social psychologists work under program deadlines, funding restrictions, and political pressures.

While laboratory effects need to reach statistical significance to support the hypothesis of the experimenter, implemented social programs need to show effects that are not only statistically significant but also large enough to have real-world consequences for the program’s sponsor. Applied social psychologists must also make quantitative estimates when designing an experimental social program to show that the program’s benefits will ultimately outweigh the initial costs.

WORKING IN APPLIED SOCIAL PSYCHOLOGY

To list all the areas to which social psychology is currently being applied would be almost impossible. Broadly, applied social psychologists are active in studying and improving educational programs, industrial and organizational productivity, environmental and health care issues, justice system reform, and all types of mass communication, including advertising, public relations, and politics. Some applied social psychologists conduct research for academic institutions, some for private foundations and corporations, and some for government organizations. Some evaluate the success or failure of a specific experimental social program while others work as internal consultants to government agencies and businesses, providing feedback on a variety of projects. Some applied social psychologists give policy advice to corporate or government managers from outside an organization while still others become managers themselves. Finally, some applied social psychologists become full-time advocates for social change, working with activist groups rather than from inside a government or corporate body.

CRITICISMS OF APPLIED SOCIAL PSYCHOLOGY

Criticisms of applied social psychology come from psychologists as well as from policymakers.

Laboratory psychologists question the methodology behind much of the applied social research. With no control groups, few experimental manipulations, and a heavy reliance on self-report and correlation, can applied social psychology really contribute to social psychological theories? After all, a successful social program will need to be tailored differently to every community in which it is implemented. Policymakers question whether the effects of experimental social programs are large enough (or cheap enough) to be widely implemented. Others argue that the large-scale behavior modification implied in some social psychological programs is unethical. Ultimately, there is a genuine tradeoff between conducting basic and applied social psychological research. In basic studies, researchers seek general principles that may not directly apply to more complicated real-world problems; in applied studies, researchers address specific problems, yet their conclusions may fail to generalize to other situations.

While both groups have valid critiques of an admittedly murky field, it is important to emphasize that applied social psychologists are actively engaged in the scientific study of social issues. While this problem-oriented approach does take some emphasis away from theory building, the plethora of field observations and unique program implementations essential to applied research will only serve to strengthen and refine current and future social psychological theories. Although the oversimplification of research findings could lead to the improper implementation of social programs, applied social psychologists seek to prevent such use by taking an active role in designing socially responsible policy.

A final issue to note is that the implied divide between applied and basic research ignores the contributions that basic social psychologists often make to areas of application. While applied social psychology refers to research with a problem-oriented focus, it is much more difficult to define who meets the definition of an applied social psychologist. Many psychologists primarily focused on basic laboratory research are also actively involved in the Society for the Psychological Study of Social Issues and other organizations committed to the application of social psychological principles.

TERRITORIALITY DEFINITION

Territoriality is a pattern of attitudes and behavior held by a person or group that is based on perceived, attempted, or actual control of a physical space, object, or idea, which may involve habitual occupation, defense, personalization, and marking of the territory. Marking means placing an object or substance in a space to indicate one's territorial intentions. Cafeteria diners leave coats or books on a chair or table. Prospectors stake claims. Personalization means marking in a manner that indicates one's identity. Many employees decorate their workspaces with pictures and mementoes. Some car owners purchase vanity license plates.

Territoriality usually is associated with the possession of some physical space, but it can also involve such processes as dominance, control, conflict, security, claim staking, vigilance, and identity. If a territory is important to a person, his or her sense of identity may be closely tied to it. Although it is sometimes associated with aggression, territoriality actually is much more responsible for the smooth operation of society because most people, most of the time, respect the territories of others.

TYPES OF TERRITORIES

Territoriality is extremely widespread. Once you recognize them, the signs of human territoriality are

everywhere: books spread out on a cafeteria table to save a place, nameplates, fences, locks, no-trespassing signs, even copyright notices. There are billions of territories in the world; some are large, others small, some are nested within others (such as a person's "own" chair within a home), and some are shared.

Primary territories are spaces owned by individuals or primary groups, controlled on a relatively permanent basis by them and central to their daily lives. Examples include your bedroom or a family's dwelling. The psychological importance of primary territories to their owners is always high. Secondary territories are less important to their occupiers than primary territories, but they do possess moderate significance to their occupants. A person's desk at work, favorite restaurant, locker in the gym, and home playing field are examples. Control of these territories is less essential to the occupant and is more likely to change, rotate, or be shared with strangers.

Public territories are areas open to anyone in good standing with the community. Beaches, sidewalks, and hotel lobbies are public territories. Occasionally, because of discrimination or unacceptable behavior, public territories are closed to some individuals. Retail stores, for example, are public territories open to anyone. However, someone who causes trouble may be banned from a particular store.

The physical self may be considered as a body territory. The boundary is at one's skin. Bodies may be entered with permission (as in surgery) or without permission (as in a knife attack). Some people mark and personalize their own bodies with makeup, jewelry, tattoos, piercings, and clothing, but they certainly defend and try to control access to their bodies by other people.

Two other types of territories exist, although they are not universally considered territories. Objects meet some of the criteria for territories—we mark, personalize, defend, and control our possessions. Ideas are also, in some ways, territories. We defend them through patents and copyrights. There are rules against plagiarism. Software authors and songwriters try to protect ownership of their programs and songs.

TERRITORIALITY INFRINGEMENTS

Even though territories usually work to keep society hassle-free, sometimes they are infringed upon. The most obvious form of infringement is invasion, in which an outsider physically enters someone else's territory, usually with the intention of taking it from its current owner. One obvious example is one country trying to take the territory of another.

The second form of infringement is violation, a temporary infringement of someone's territory. Usually, the goal is not ownership but annoyance or harm. Vandalism, hit-and-run attacks, and burglary fall into this category.

Sometimes a violation occurs out of ignorance, as when a boy who cannot yet read walks into a woman's wash-room. Other times the violation is deliberate, such as computer pranksters worming their way into others' machines. Violation may occur without the infringer personally entering the territory. Jamming radio waves and playing loud music are some examples.

The third form of infringement is contamination, in which the infringer fouls someone else's territory by putting something awful in the territory. Examples would be a chemical company leaving poisonous waste in the ground for later residents to deal with, a house-guest leaving the kitchen

filthy, or pesticide spray drifting into your yard.

Territoriality Defense

Just as there are three general ways to infringe on territories, there are three different types of defense. When someone uses a coat, sign, or fence to defend a territory, it is called a prevention defense. One anticipates infringement and acts to stop it before it occurs.

Reaction defenses, on the other hand, are responses to an infringement after it happens. Examples range from slamming a door in someone's face or physically striking the infringer to court actions for copyright violations.

The third type is the social boundary defense. Used at the edge of interactional territories, the social boundary defense consists of a ritual engaged in by hosts and visitors. For example, you need a password to enter many Web sites. Another example is the customs office at the national border. Social boundary defenses serve to separate wanted visitors from unwanted ones.

TERRITORIALITY IN EVERYDAY LIFE

One way territoriality has been used in everyday life involves defensible space theory, sometimes called crime prevention through environmental design. The theory proposes that certain design features, such as real or symbolic barriers to separate public territory from private territory and opportunities for territory owners to observe suspicious activity in their spaces, will increase residents' sense of security and make criminals feel uneasy. It has been used widely to reduce crime in residences, neighborhoods, and retail stores.

CROWDING DEFINITION

Environmental psychologists study how human behavior and the physical environment interrelate. Decision making and behavior make an impact on environmental quality—did you walk, bike, drive, or use public transit to get to school today? The physical environment also affects behavior. Crowding illustrates how the physical environment can affect human behavior.

Psychologists distinguish between crowding, a psychological construct wherein the amount of space available is less than desired, and purely physical indices of physical space such as density. Density is typically indexed as people per room or people per square foot. More external density measures like people per acre are less relevant for human well-being. The more immediate experience of the close presence of others, particularly in living and working spaces, matters most. The distinction between psychological and physical perspectives on crowding explains why a high-density social event (e.g., party) is fun, whereas a high-density living or work space can be negative. When you need more space and can't have it, you experience crowding.

The most common reaction to crowding is stress, particularly over time and in an important space like home. For example when it is crowded, people typically have negative feelings such as anxiety and frustration about restricted behavioral options. Our choices of what, where, and when we do things are constrained. If these restrictions are experienced repeatedly, crowding can also lead to feelings of helplessness wherein we start to question our own ability to effectively manage the environment. Studies in India and in the United States have found that children and adolescents who live in more crowded homes, independent of socioeconomic status, are less likely to persist on challenging puzzles, giving up sooner than those living under uncrowded conditions.

When people experience crowding, their social interactions change. Two results are common: They withdraw from others, creating more psychological space when physical space is limited, and they become more irritable and potentially aggressive. The natural tendency to cop with crowding by social withdrawal may become a characteristic way of interacting with others. For example, one study of college roommates found that when they initially moved in together, the number of people per room in their apartment was unrelated to how much social support they perceived from their housemates. But after 6 months of living together, more crowded undergraduates felt more withdrawn and less social support from their roommates. When these college students were brought into a laboratory to interact with a stranger, they exhibited this same more socially withdrawn style. Furthermore, when the stranger (who was really a confederate working with the experimenter) offered them some emotional support during a stressful experience, the higher the density of the apartment the student lived in, the less likely they were to accept the stranger's offer of support. Thus, even when in an uncrowded situation, students who had adapted to living under more crowded conditions were more withdrawn and less receptive to offers of social support. Parents in more crowded homes are also less responsive to their children.

One of the ways researchers mark whether a situation is stressful or not is to use physiological measures like blood pressure or stress hormones (e.g., cortisol, epinephrine). If crowding is a stressor, then it should affect these physiological measures. Both laboratory research, usually with college students, and community studies provide evidence that crowding can cause physiological stress. If you carefully observe yourself or others who are in a crowded situation, you can also see nonverbal indicators of stress. For example when it's crowded, people will fidget; adjust their clothes, hair, jewelry, and so on; and often avoid eye contact. Next time you are in a very crowded setting (e.g., elevator, train), see if you notice a link between how crowded the setting is and how much these behaviors occur

Will crowding make you seriously disturbed or damage your health? Will it ruin your grades and undermine your college experience because you are in a dorm room that isn't big enough? No, but it will probably lead to more distress and more social withdrawal, especially from your roommates. If you have an exam to study for or a difficult, challenging task, crowding could have some negative effects. Laboratory experiments show that crowding impairs complex, but not simple, task performance. If the task is demanding, requiring a lot of effort and attention to multiple components, it is likely to suffer under crowded conditions.

What about individual differences in sensitivity to crowding—does everyone respond the same way to a crowded situation? If you are studying and your friend is talking with his friends, crowding is likely to have drastically different effects on each of you. Men may react more physiologically to crowding, their blood pressure and stress hormones elevating more, whereas women (at least initially) try to get along with those around them when it's crowded. However, over time, if these attempts are unsuccessful, women may actually react more negatively because their attempts at affiliation prove futile. One study of tripled college dorm rooms designed for two people found more psychological distress in women than in men, but it took more time for this to occur in the females. The tripled-up men, but not the women, evidenced elevated stress hormones. How about culture or ethnicity? Some groups of people (e.g., Asian, Latin Americans) do indeed perceive high-density situations as less crowded than do others (e.g., White and Black North Americans). But their negative reactions to crowding are similar across cultures. The threshold to experience crowding may be

different, but once it happens, their reactions are parallel to one another.

One final topic worth brief mention is the potential role of architecture and design in crowding. Space is not simply area or volume. For example, in a study of elementary school children, the impacts of residential density were related to the type of housing. Children living in larger, multifamily residences, independently of social class, reacted more negatively to higher-density living spaces than did children living in single-family homes. There is also evidence that having some space in your home where you can at least temporarily be alone (refuge) can offset some of the negative impacts of crowding. Crowding is but one example of the many ways in which human behavior and the physical environment can influence one another.

Social Psychology MCQs

1. Who is best known for his research on conformity?

- a) Asch
- b) Rubin
- c) Schachter
- d) Zimbardo

Ans:- A

2. During the Stanford Prison study,

- a) guards did not take their roles seriously
- b) guards readily assumed their roles as agents of force
- c) the prisoners and the guards quickly became friendly towards one another
- d) three prisoners were so severely beaten they had to be hospitalized

Ans:- B

3. During research in a simulated prison situation

- a) three prisoners were so severely beaten they had to be hospitalized
- b) guards did not take their roles seriously
- c) prisoners quickly became passive and dehumanized
- d) the prisoners and the guards quickly became friendly towards one another

Ans:- C

4. The degree of attraction among group members relates to the dimension of

- a) Compatibility
- b) Structure
- c) Cohesiveness
- d) Conformity

Ans:- C

5. You are walking into a store when a man rudely cuts in front of you, almost shoving you, so that

he may enter the store first. "What a jerk!" you think to yourself. As you enter the store, you see the same man performing an emergency tracheotomy on a woman with a collapsed windpipe. You have just

- a) discounted a person's actions due to situational demands
- b) self-handicapped
- c) overemphasized the object in this action sequence
- d) made the fundamental attribution error

Ans:- D

6. According to evolutionary psychologists,

- a) women tend to be concerned with whether mates will devote time and resources to a relationship.
- b) men place less emphasis on physical attractiveness
- c) women place more emphasis on sexual fidelity
- d) men are biologically driven to have multiple partners

Ans:- A

7. Which statement about physical attractiveness is FALSE?

- a) Beauty is a factor mainly in initial acquaintances
- b) Looks are less related to dating frequency for men than for women
- c) For men, there is little relationship between attractiveness and the achievement of status
- d) For marriage partners there is a tendency for attractive men to be paired with highly educated women with high incomes

Ans:- D

8. Moderate self-disclosure typically leads to

- a) competence matching
- b) rejection
- c) romantic attraction
- d) reciprocity

Ans:- D

9. When subjects in Milgram's obedience experiments received their orders over the phone, they

- a) conformed more completely due to the formality of the telephoned instructions
- b) completely refused to participate
- c) were only slightly more obedient than they were in face-to-face conditions
- d) were far less obedient

Ans:- D

10. Solomon Asch's classic experiment (in which subjects judged a standard line and comparison lines) was arranged to test the limits of

- a) social perception
- b) indoctrination

- c) coercive power
- d) conformity

Ans:- D

11. The person who agrees to a small request initially is more likely later to comply with a larger demand. This describes the

- a) door-in-the-face-effect
- b) foot-in-the-door effect
- c) low-ball technique
- d) high-ball technique

Ans:- B

12. For most American adults, an invisible spatial envelope defining their most intimate space

- a) extends four feet from their body
- b) extends an "arm's reach" from their body
- c) is reserved for comfortable interactions with friends
- d) extends about 18 inches out from their body

Ans:- D

13. Which theory holds that a relationship must be profitable to endure?

- a) complementary need theory
- b) social exchange theory
- c) gain-loss theory
- d) social comparison theory

Ans:- B

14. You are asked by a close friend to outline a complete text to aid her studying for a final exam. You refuse to help. Later, your friend asks if you would at least outline two chapters. Feeling guilty, you now agree to help. Your behavior is predicted by the

- a) foot-in-the-face technique
- b) high-ball effect
- c) low-ball technique
- d) door-in-the-face effect

Ans:- D

15. Attachment style is marked by conflicting feelings of affection, anger, and emotional turmoil

- a) Mutual
- b) Secure
- c) Avoidant
- d) Ambivalent

Ans:- D

16. Zimbardo interpreted the results of his simulated prison study as an indication of the

- a) powerful influence of roles on people
- b) tendency to show compassion to people in need
- c) weakness of social pressure in some situations
- d) tendency to displace aggression

Ans:- A

17. Subjects in Milgram's experiment who gave large shocks rationalized that they were NOT personally responsible for their actions. This raises questions about our willingness to commit inhumane acts as a result of

- a) coercive power
- b) obedience to a legitimate authority
- c) expert power
- d) conformity to group pressure

Ans:- B

18. The process of changing your behavior to match that of others in a group is

- a) Norming
- b) forming a social contract
- c) conformity
- d) standardization

Ans:- C

19. If everyone leaves five minutes before the game is over to avoid a traffic jam, the resulting traffic jam would be an example of

- a) social impregnation
- b) a social trap
- c) groupthink
- d) self-handicapping

Ans:- B

20. People's invisible "spatial envelope" defines their _____, and extends "I" or "me" boundaries past the skin

- a) spatial role
- b) personal space
- c) ego location
- d) proximal location

Ans:- B

21. Physical proximity increases attraction because it

- a) increases frequency of contact
- b) enhances social comparisons
- c) establishes common norms
- d) reduces development of incompatible roles

Ans:- A

22. The study of unspoken rules for the use of interpersonal space is called

- a) Kinesics
- b) Psychoecology
- c) Proxemics
- d) Territoriality

Ans:- C

23. Someone asks you to bring dip to a party and you agree. Later the person asks you to also bring popcorn, chips, and sodas. The person has used which compliance strategy?

- a) the low-ball technique
- b) the over-commitment strategy
- c) the whole-part technique
- d) the passive obedience method

Ans:- A

24. The real danger of "groupthink" is that it

- a) is contagious
- b) occurs in cohesive groups
- c) disrupts coordinated efforts at group problem solving
- d) leads to a suspension of critical thinking

Ans:- D

25. The organization of roles, patterns of communication, and power in a group defines the group's

- a) Status
- b) Structure
- c) Cohesiveness
- d) Norms

Ans:- B

26. Those roles which one attains voluntarily are called

- a) ascribed roles
- b) achieved roles
- c) positions
- d) social selves

Ans:- B

27. Social traps can be dismantled by changing

- a) rewards and costs
- b) supply and demand
- c) compliance and assertiveness
- d) the tendency toward groupthink

Ans:- A

28. A learned disposition to respond to people, objects, or institutions in a positive or negative way defines

- a) cognitive dissonance
- b) socialization
- c) attitudes
- d) stereotypes

Ans:- C

29. In general, helping behavior in emergency situations is discouraged by

- a) the presence of a large number of persons
- b) low costs associated with helping
- c) smaller social distance between the helper and the victim
- d) fear of cognitive dissonance

Ans:- A

30. When a person with little or no authority makes a direct request to another person, the situation involves

- a) Compliance
- b) Obedience
- c) Coercion
- d) Conformity

Ans:- A

31. The fact that physically attractive people also tend to be rated more highly on traits such as intelligence and honesty is an example of

- a) social magnetism
- b) role modeling
- c) social comparisons
- d) the halo effect

Ans:- D

32. Negative attitudes that are tinged with fear, hatred, or suspicion is a definition of

- a) Prejudice
- b) Authoritarianism
- c) Discrimination
- d) Displaced aggression

Ans:- A

33. Interpersonal attraction is encouraged by which one of the following?

- a) personal space
- b) proxemics

- c) competition
- d) similarity

Ans:- D

34. Janis recommends ways to prevent groupthink, which include

- a) focusing on subjective evaluation and interpretation
- b) having the leader state personal preferences before discussion
- c) focusing on the decision, as opposed to the process
- d) encouraging someone to play devil's advocate

Ans:- D

35. In an experiment in which a "student" simulated a seizure, helping was inhibited by

- a) conditions employing smaller groups
- b) diffusion of responsibility
- c) group discussion
- d) reference cognitive dissonance

Ans:- B

36. Sharing your own private thoughts and feelings is called

- a) self-talk
- b) autonomy
- c) self-disclosure
- d) introspection

Ans:- C

37. Which of the following was a significant factor in determining the degree of obedience in Milgram's series of experiments?

- a) the tone of voice used by the experimenter
- b) whether the experimenter was male or female
- c) amount of complaining, shouting, and crying by the learner
- d) the setting in which the experiment was conducted

Ans:- D

38. You do not want a large, unattractive political sign in your yard. However, if you initially agree to put a small sign in your window, later you are more likely to allow the large sign in your yard. This course of events is described by the

- a) foot-in-the-face technique
- b) low-ball technique
- c) door-in-the-face effect
- d) foot-in-the-door effect

Ans:- D

39. In his classic studies of conformity, Asch demonstrated that

- a) size of the majority does not influence how many people will conform
 - b) a majority of one produces about as much conformity as a majority of eight
 - c) lack of unanimity greatly reduces the pressure to conform
 - d) obedience to authority was determined by the authority's perceived referent power
- Ans:- C

40. Expected behavior patterns associated with particular social positions are called

- a) Roles
- b) Culture
- c) Stereotypes
- d) Mannerisms

Ans:- A

41. As part of an experiment, two young women stroll down a busy sidewalk with their arms around each other. They get a variety of reactions from passersby, including disapproving looks and comments. These reactions demonstrate the existence of

- a) Norms
- b) ascribed roles
- c) group structures
- d) achieved roles

Ans:- A

42. How individuals are affected by the presence of others is the focus of study in the field of

- a) Sociology
- b) Social psychology
- c) Experimental psychology
- d) Sociobiology

Ans:- B

43. Groups reward members with _____ and _____ for conformity.

- a) unanimity; power
- b) power; authority
- c) legitimacy; power
- d) approval; acceptance

Ans:- D

44. Stanley Milgram's experiment in which a "teacher" gave shocks to a "learner" was designed to test the limits of

- a) expert power
- b) coercive power
- c) obedience
- d) conformity to a majority

Ans:- C

45. Milgram's shock study showed people to be surprisingly

- a)** Rebellious
- b)** Intelligent
- c)** Sexist
- d)** Obedient

Ans:- D

46. A reference group is

- a)** one with which a person has face-to-face contact
- b)** any group in which one plays an active role or has membership
- c)** any group outside one's social distance boundaries
- d)** any group whose values and attitudes are seen as relevant to one's own

Ans:- D

47. Studies of conformity indicate that people are more apt to be influenced by others if they

- a)** are concerned about the approval of others
- b)** have low needs for certainty and structure
- c)** are in temporary rather than established groups
- d)** are in very large groups

Ans:- A

48. In-group bias is the

- a)** Tendency to favor one's group and see this group as correct
- b)** Tendency to see other members of a group as similar
- c)** Tendency to perform worse when others are watching
- d)** Tendency to conform to the social harmony of a group

Ans:- A

49. People who are less likely to help someone because there are a lot of people present would be exhibiting:

- a)** Groupthink
- b)** Group polarization
- c)** Diffusion of responsibility
- d)** Mere exposure effect

Ans:- C

50. If you have a friend who is reluctant to help you clean your entire room, you may be successful through asking him to simply help you move one item in your room. This approach is referred to as:

- a)** Cognitive dissonance
- b)** Altruism
- c)** Foot-in-the-door

d) Door-in-the-foot

Ans:- C

51. Which of these is not a principle of great man theory?

- a) Leaders are born not made.**
- b) Great men rise up in times of crisis**
- c) We can learn from the biographies of great leaders**
- d) A great leader is only great in certain situations**

Ans:- D

52. In leadership trait theory what is a trait?

- a) A list of the things that make leaders different to everyone else**
- b) A list of the key things that a leader should do to be great**
- c) The list of key behaviours a leader exhibits**
- d) A list of key characteristics that makes a leader great**

Ans:- D

53. For the Ohio State leadership studies the perfect leader:

- a) Combines a focus on the task and the employee**
- b) Focuses on the task and getting things done**
- c) Inspires workers to aim higher and achieve more**
- d) Is concerned about the small details and how to increase productivity**

Ans:- A

54. Contingency theory is based on the assumption that the ideal leader:

- a) Shapes their leadership style depending on the situation**
- b) Provides clear instructions to the followers so that they know what they are doing**
- c) Knows what their strengths are and makes the most out of them**
- d) Spends time with their followers and therefore listens and responds to their needs**

Ans:- A

55. A transactional leader is one who:

- a) Inspires people and has strong interactions with them**
- b) Deals with people in order to get them to do things the leader wants**
- c) Is the ideal form of leadership**
- d) Works for long-term goals of the organization**

Ans:- B

56. What is a transformational leader?

- a) Someone who is involved in organizational change**
- b) A leader, like Taylor, who provided new ways of carrying out management**
- c) A leader who inspires the workers to new levels by offering them a vision of a better future**
- d) Leader who tries to transform their staff by giving them rewards for what they do**

Ans:- C

57.What is post-heroic leadership theory?

- a) A theory which states that there is too much emphasis on leaders and more attention should be placed on followers
- b) A theory looking beyond current leadership styles to new, more creative ways of leading
- c) A theory which tries to create new organizations which do not need leaders
- d) A theory which tries to find the ideal form of leadership

Ans:- A

58.What is the social construction of leadership?

- a) The view that all leadership is social and what matters is how leaders interact with others
- b) Leadership is a made up idea that therefore we should pay more attention to more significant aspects of the organization
- c) What counts as good leadership is a construction of the perceptions of the followers
- d) Leadership is something that the leader constructs as they meet with others

Ans:- C

59.What is the 'glass ceiling'?

- a) A barrier which prevents women from passing through to more senior positions in the company
- b) An old fashioned idea that suggests that women should not make it to the boardroom in organizations
- c) The effect where men can pass by women in women dominated professions
- d) An approach which seeks to get more women in senior positions in organizations

Ans:- A

60. Jimmy is very quiet at school, but later that night at a party Jimmy gets 'crazy' and starts to cut the rug on the dance floor. Jimmy's classmates are stunned at this displayed behavior. Jimmy is experiencing:

- a) Group polarization
- b) The power of SSRI's
- c) Deindividuation
- d) Groupthink

Ans:- C

61. _ set up an experiment, known as the Stanford Prison experiment, where people played the role of a prison guard. The goal was to observe if this authority position would cause them to act differently

- a) Stanley Milgram
- b) Philip Zimbardo
- c) Solomon Asch
- d) Muzafer Sherif

Ans:- B

62. Social Facilitation occurs:

- a) To the tendency for people to do less in a group setting
- b) To the tendency to keep personal opinions to themselves for fear of upsetting the group
- c) When the presence of other people watching improves a person's performance
- d) person's performance
- e) When the presence of other people watching hinders a person's performance

Ans:- C

63. Groupthink is defined as:

- a) When an attitude becomes stronger in group presence
- b) Thinking that revolves around keeping harmony within a group through not disagreeing with group opinion
- c) The tendency to do less in a group situation
- d) Improved performance when people are watching

Ans:- B

64. In Stanley Milgram's experiment on the role of obedience, the _____ was the person who worked with Milgram and played the part of an authority figure.

- a) Teacher
- b) Learner
- c) Experimenter
- d) Doctor

Ans:- C

65. According to Solomon Asch, in his experiment on conformity, _____% of the subjects gave the wrong answer because the group unanimously also gave the wrong answer.

- a) 76
- b) 48
- c) 32
- d) 89

Ans:- A

66. In Stanley Milgram's experiment on the role of obedience, the _____ was the subject who was being observed and did not know what the experiment was about or what was being studied.

- a) Learner
- b) Experimenter
- c) Teacher
- d) Milgram

Ans:- C

67. _____ is a change in behavior or belief as a result of group pressure.

- a) Cohesiveness
- b) Conformity
- c) Compliance

d) Obedience

Ans:- B

68. Publicly acting in accord with social pressure while privately disagreeing is called

a) Acceptance

b) Compliance

c) Reactance

d) Interaction

Ans:- B

69. Both acting and believing in accord with social pressure is called

a) Acceptance

b) Reactance

c) Compliance

d) Interaction

Ans:- A

70. An important difference between Asch's experiment in which participants judged the length of lines and Sherif's experiment in which participants judged the movement of light was that

a) Asch's participants were older than were Sherif's

b) there was an obviously correct answer in judging the length of lines but that was not so in judging the movement of light

c) Asch's participants made their judgments privately whereas Sherif's participants made their judgments publicly

d) Asch's participants were all male whereas Sherif's participants were both male and female

Ans:- B

71. In Asch's study of perceptual judgment involving the length of lines, naive participants conformed of the time to the false judgments of the confederates.

a) 10 percent

b) 37 percent

c) 68 percent

d) 92 percent

Ans:- B

72. Participants' tendencies to obey the experimenter's commands to shock a victim were highest when the experimenter was _____ and the victim was _____.

a) close; distant

b) close; close

c) distant; distant

d) distant; close

Ans:- A

73. To believe that Asch's compliant participants were particularly spineless people is to

- a) forget that behavior shapes belief
- b) overlook other personality characteristics that determine conformity
- c) make the fundamental attribution error
- d) ignore how the status of the experimenter shapes behavior

Ans:- C

74. How social pressure may lead us to perform immoral acts is best illustrated by studies of

- a) psychological reactance
- b) spontaneous self-concept
- c) obedience to authority
- d) informational influence

Ans:- C

75. The effect of group size on conformity has been explained by _____ theory.

- a) cognitive dissonance
- b) social norm
- c) psychological reactance
- d) social impact

Ans:- D

76. Milgram reported that a participant's tendency to obey the experimenter decreased dramatically

- a) when two other participants defied the experimenter
- b) when the participant could not hear the responses of the learner
- c) when the experimenter was a female
- d) when the experimenter was younger than the participant

Ans:- A

77. Philip hates to attend concerts but goes because his wife wants to. After three years Philip comes to genuinely enjoy concerts. This is an example of

- a. how acceptance can lead to compliance
- b. how compliance can lead to acceptance
- c. the "boomerang effect"
- d. how psychological reactance can lead to acceptance

Ans:- B

78. Commitment without intimacy or passion is

- a) Romantic love
- b) Empty love
- c) Non love
- d) Consummate love

Ans:- B

79.Decibel (dB) is the unit of

- a) Temperature
- b) Noise
- c) Pressure
- d) Density

Ans:- B

80.Depressive disorder connected to a specific season is

- a) Bipolar Disorder
- b) SAD
- c) Mania
- d) Hallucination

Ans:- B

81.A person's domicile is an example of _____territory

- a) Primary
- b) Secondary
- c) Tertiary
- d) None of the above

Ans:- A

82.Waiting room is a kind of _____territory

- a) Primary
- b) Secondary
- c) Tertiary
- d) None of the above

Ans:- C

83.One's preferred chair in a class is

- a) Primary territory
- b) Secondary territory
- c) Tertiary territory
- d) None of the above

Ans:- B

84.Crowding is a:

- a) Psychological phenomena
- b) Subjective feeling
- c) Potential source of stress
- d) All of the above

Ans:- D

85.Everyone has the right to access:

- a) Primary territory
- b) Secondary territory
- c) Tertiary territory
- d) Both b & c

Ans:- C

86.According to Hall, intimatedistance is

- a) 6 – 18 inches
- b) 1.5 – 4 feet
- c) 4 – 12 feet
- d) 12 – 25 feet

Ans:- A

87.Personal distance is

- a) 6 – 18 inches
- b) 1.5 – 4 feet
- c) 4 – 12 feet
- d) 12 – 25 feet

Ans:- B

88.Public distance can be

- a) 6 – 18 inches
- b) 1.5 – 4 feet
- c) 4 – 12 feet
- d) 12 – 25 feet

Ans:- D

89.A distance of _____ is social distance

- a) 6 – 18 inches
- b) 1.5 – 4 feet
- c) 4 – 12 feet
- d) 12 – 25 feet

Ans:- C

90.The highest level of physical distance is in _____

- a) Intimate relations
- b) Public relations
- c) Personal relations
- d) Social relations

Ans:- B

91.Personal space first defined by

- a) Hall

- b) Sommer**
 - c) Katz**
 - d) Sheriff**
- Ans:- C

92. Correct Sequence of prosocial behaviour

- a) Notice what is happening > Interpret the event as an emergency > Experience feelings of responsibility > Believe that they have the skills to help > Make a conscious choice to offer assistance**
- b) Interpret the event as an emergency > Notice what is happening > Experience feelings of responsibility > Believe that they have the skills to help > Make a conscious choice to offer assistance**
- c) Believe that they have the skills to help > Experience feelings of responsibility > Notice what is happening > Interpret the event as an emergency > Make a conscious choice to offer assistance**
- d) Experience feelings of responsibility > Believe that they have the skills to help > Notice what is happening > Interpret the event as an emergency > Make a conscious choice to offer assistance**

Ans:- A

93. Unselfish concern for other people is

- a) Prosocial behavior**
- b) Bystander effect**
- c) Altruism**
- d) Volunteering**

Ans:- C

94. The Negative Affect Escape Model explained by

- a) Baron**
- b) Baron & Bell**
- c) Bell**
- d) None of the above**

Ans:- B

95. Negative Affect Escape Model links to:

- a) Inverted S hypothesis**
- b) Inverted U hypothesis**
- c) Parabola**
- d) S curve**

Ans:- B

96. Population is effected by

- a) Birth & death**
- b) immigration**
- c) emigration**

d) all of the above

Ans:- D

97. Technical term used for the study of human population

a) Biography

b) Demography

c) Bibliography

d) Census

Ans:- B

98. Kin selection is an evolutionary theory that explains _____ of Altruism

a) Biological reasons

b) Neurological reasons

c) Cognitive reasons

d) Social norms

Ans:- A

99. Emergency observed -> Empathy aroused -> Help provided to the victim as it gave good feeling to the helper is;

a) Negative – state relief model

b) Genetic determinism mode

c) Empathy-altruism hypothesis

d) Empathy-joy hypothesis

Ans:- C

100. Who is more likely to help?

a) A person with a handicap

b) A person with an altruistic personality

c) A stranger to the victim

d) A person in a crowd of strangers

Ans:- B

101. Phrenologists tried to find out about personality by:

a. reading a person's horoscope

b. feeling a person's skull

c. looking at a person's hands

d. asking people questions

Ans:- B

102. A limitation of selective breeding studies is that they cannot:

a. tell us anything about the role of genes

b. be used to study human beings

c. provide information relevant to the nature/nurture debate

d. tell us anything about the role of the environment

Ans:- B

103. Which neo-Freudian challenged his ideas about penis envy?

a. Adler

b. Fromm

c. Jung

d. Horney

Ans:- D

104. Someone who feels as though they are not living up to expectations would be described by Adler as having:

a. low self-realization

b. an Adlerian complex

c. an inferiority complex

d. low actualization

Ans:- C

105. According to Freud, the mind's three components are:

a. ego, id, superego

b. unconscious, moral, immoral

c. oral, anal, phallic

d. primary, secondary, tertiary

Ans:- A

106. The idea that you can assess someone's personality by studying their face is called:

a. phrenology

b. physiology

c. somatology

d. physiognomy

Ans:- D

107. The ___ complex is to girls boys.

a. Electra, Oedipus

b. Oedipus, Electra

c. oral, phallic

d. phallic, oral

Ans:- A

108. The discovery that the heritability of the Big Five personality traits is around 40% – 50% suggests that:

a. the environment plays no role in personality

b. genes play no role in personality

- c. the environment plays an important role in personality
- d. the Big Five traits account for about half of our personality

Ans:- C

109. Humanistic psychologists embraced the idea of:

- a. repression
- b. free will
- c. unconscious drives
- d. the id

Ans:- B

110. According to Eysenck, extraverts seek to _____ their arousal while introverts seek to _____ their arousal.

- a. decrease, increase
- b. hide, reveal
- c. increase, decrease
- d. reveal, hide

Ans:- C

111. Allport believed that traits could be organized into three levels:

- a. primary, secondary, tertiary
- b. cognitive, emotional, physiological
- c. id, ego, superego
- d. cardinal, central, secondary

Ans:- D

112. The MMPI is used to measure:

- a. unconscious drives
- b. the Big Five traits
- c. personality and psychological disorders
- d. leadership potential

Ans:- C

113. Which of the following is NOT one of the Big Five traits?

- a. sense of humour
- b. openness to experience
- c. conscientiousness
- d. extraversion

Ans:- A

114. Freud founded the _____ approach to understanding human behaviour.

- a. palliative
- b. psychodynamic

- c. patronymic
- d. psychedelic

Ans:- B

115. The influence of parents on the personality of their children is:

- a. non-existent
- b. weakest in early childhood
- c. strongest in early childhood
- d. consistent across the lifespan

Ans:- C

116. What is special about “knockout” mice?

- a. they are very attractive
- b. their DNA has been modified
- c. they are easy to knock out
- d. they are unusually aggressive

Ans:- B

117. The aim of behavioural genetics is to learn about:

- a. the extent to which geneticists can modify people’s behaviour
- b. the possibility of eradicating behavioural problems in children
- c. the genetic and environmental influences on human behaviour
- d. the ability of animals to learn language

Ans:- C

118. Monozygotic is to _____ twins as dizygotic is to _____ twins.

- a. male, female,
- b. female, male
- c. fraternal, identical
- d. identical, fraternal

Ans:- D

119. Which of the following characteristics describe someone who, according to Maslow, is self-actualized?

- a. creativity
- b. confidence
- c. spontaneity
- d. all of the above

Ans:- D

120. According to Freud, children pass through 4 stages of psychosexual development. Which of the following shows the stages in the correct developmental order?

- a. oral, anal, phallic, latency

- b.** latency, oral, anal, phallic
- c.** phallic, anal, oral, latency
- d.** oral, phallic, latency, anal

Ans:- A

121. Projective tests claim to reveal information about:

- a.** career aptitude
- b.** intellectual attainment
- c.** unconscious processes
- d.** parenting style

Ans:- C

122. Traits are defined as:

- a.** physical characteristics that distinguish us from other people
- b.** relatively enduring characteristics that influence our behaviour across many situations
- c.** unconscious tendencies to act in different ways according to the situation
- d.** permanent personality tendencies that determine our behaviour in any situation

Ans:- B

123. Sheldon's theory that people with different body types have different personalities has been:

- a.** supported by research
- b.** discredited
- c.** shown to be accurate for thin people but not overweight people
- d.** shown to be accurate for women but not for men

Ans:- B

124. Which of the following is not a defence mechanism?

- a.** projection
- b.** regression
- c.** ingratiation
- d.** sublimation

Ans:- C

125. Rohan is self-disciplined, focused on achievement and keen to do his duty. He would be expected to score highly on:

- a.** neuroticism
- b.** agreeableness
- c.** extraversion
- d.** conscientiousness

Ans:- D

126. The Barnum effect helps to explain people's belief in:

- a.** fortune-telling

- b. astrology
- c. horoscopes
- d. all the above

Ans:- D

127. _____ are the basic biological units that transmit characteristics from one generation to the next:

- a. genes
- b. neurons
- c. glia
- d. instincts

Ans:- A

128. Which of the following would NOT be useful to a behavioural geneticist?

- a. family studies
- b. case studies
- c. adoption studies
- d. twin studies

Ans:- B

129. According to Freud, the id is to the _____ principle as the ego is to the _____ principle.

- a. aggressive, sexual
- b. sexual, aggressive
- c. pleasure, reality
- d. reality, pleasure

Ans:- C

130. Lana is friendly, always willing to help others and compassionate. We would expect Lana to score highly on:

- a. extraversion
- b. agreeableness
- c. neuroticism
- d. openness to experience

Ans:- B

131. Physically attractive people are usually perceived as:

- a. more intelligent than unattractive people
- b. more dominant than unattractive people
- c. more socially skilled than unattractive people
- d. all of the above

Ans:- D

132. Research has shown a positive correlation between aggression and the level of:

- a. acetylcholine
- b. testosterone
- c. estrogen
- d. GABA

Ans:- B

133. In Milgram's original study on obedience, what percentage of participants were willing to administer the maximum level of shock:

- a. 5%
- b. 30%
- c. 65%
- d. 95%

Ans:- C

134. People are more likely to help others if:

- a. they are in a bad mood
- b. they feel guilty about something
- c. someone else is already helping
- d. they are in a hurry

Ans:- A

135. Punching a wall or kicking a chair when you are angry at a co-worker are examples of:

- a. displaced aggression
- b. inanimate hostility
- c. repression
- d. avoidant attachment

Ans:- A

136. An advertiser who seeks to associate their product with something people already like (for example, a celebrity or a popular song) is making use of:

- a. classical conditioning principles
- b. pseudoscience
- c. operant conditioning principles
- d. sublimation

Ans:- D

137. According to Moreland and Beach, the more frequently we see a person the:

- a. less likely we are to recognize them
- b. less likely we are to trust them
- c. more likely we are to dislike them
- d. more likely we are to like them

Ans:- C

138. Having an audience typically _____ us if we are doing an easy task and _____ us if we are doing a difficult task.

- a. hinders, hinders
- b. helps, helps
- c. helps, hinders
- d. hinders, helps

Ans:- A

139. Groupthink is most likely when:

- a. there is time pressure
- b. group members feel no sense of group identity
- c. there is a weak leader
- d. group members are in frequent contact with people outside the group

Ans:- D

140. Stimulation of the amygdala is most likely to increase feelings of:

- a. happiness
- b. guilt
- c. shyness
- d. aggression

Ans:- B

141. Evolutionary theory predicts that we will be most likely to help:

- a. old people
- b. family members
- c. poor people
- d. strangers

Ans:- B

142. Research has shown that people are LESS willing to administer severe shocks in the Milgram paradigm if:

- a. they choose the level of shock themselves
- b. the person telling them to administer the shock is in another room
- c. they knew that other people had refused to administer severe shocks
- d. all of the above

Ans:- D

143. In terms of interpersonal attraction, research suggests that:

- a. opposites attract
- b. similarity breeds contempt
- c. birds of a feather flock together
- d. a stitch in time saves nine

Ans:- C

144. We tend to stereotype people on the basis of their:

- a. physical appearance
- b. age
- c. race
- d. all of the above

Ans:- D

145. People who are high in self-monitoring are _____ likely to act in ways consistent with their attitudes than people who are low in self-monitoring.

- a. more
- b. less
- c. neither more nor less
- d. more if they are angry, less if they are sad

Ans:- B

146. To be classed as "intimate", a relationship must be based on:

- a. passion
- b. acceptance
- c. social support
- d. all of the above

Ans:- D

147. Prejudice is to _____ as discrimination is to _____.

- a. thought, action
- b. race, age
- c. stereotype, categorization
- d. negative, positive

Ans:- A

148. The tendency to underestimate the role of situational factors when deciding why a stranger behaved in a particular way is known as the:

- a. self-serving bias
- b. fundamental attribution error
- c. situational exploitation bias
- d. causal explanation error

Ans:- B

149. If you want someone to be attracted to you, research suggests that you should:

- a. ask them about themselves
- b. argue with them
- c. talk only about yourself

d. all of the above

Ans:- A

150. The fact that as group size increases, group productivity tends to decrease is most likely explained by:

- a.** groupthink
- b.** stereotyping
- c.** social loafing
- d.** social facilitation

Ans:- C

151. According to the “foot in the door” technique, you are more likely to be able to change someone’s attitude if you:

- a.** visit them in their home
- b.** start by complimenting them on their choice of footwear
- c.** tell them how many celebrities hold the attitude you want them to adopt
- d.** get them to make a small change in attitude to start with

Ans:- D

152. Jill and John have been married for many years and rely on each other to meet important goals. This reliance reveals that they are:

- a.** passionate
- b.** interdependent
- c.** self-serving
- d.** all of the above

Ans:- B

153. Groups that set _____ and _____ goals are more likely to be effective than groups that don’t set these kind of goals.

- a.** easy, vague
- b.** vague, unreachable
- c.** specific, attainable
- d.** difficult, unattainable

Ans:- C

154. Which of the following best illustrates the concept of minority influence?

- a.** a union is successful in negotiating an improved benefits package for its members
- b.** three teenagers manage to persuade their school to adopt a new anti-litter policy
- c.** Shari is able to persuade her friend Ivy to give up smoking
- d.** the government passes a law requiring cyclists to wear helmets

Ans:- B

155. According to cognitive dissonance theory, we may be motivated to change our attitudes to:

- a.** reduce negative feelings

- b.** conform to the attitudes of high-status individuals
- c.** force others to do the same
- d.** increase our level of anxiety

Ans:- A

156. Another term for the fundamental attribution error is:

- a.** commitment
- b.** correspondence bias
- c.** cognitive dissonance
- d.** stereotype threat

Ans:- B

157. We are likely to make a _____ attribution to explain our success, and a ___tribution to explain our failure.

- a.** causal, correlational
- b.** correlational, causal
- c.** person, situation
- d.** situation, person

Ans:- C

158. Benjamin thinks that if he kick his car and swears at his computer he will release his anger and be less aggressive with his co-workers. Benjamin believes in:

- a.** the fundamental attribution error
- b.** social loafing
- c.** social facilitation
- d.** catharsis

Ans:- D

159. One likely explanation for why so many people ignored Kitty Genovese's situation is:

- a.** social facilitation
- b.** the social responsibility norm
- c.** diffusion of responsibility
- d.** groupthink

Ans:- C

160. The Implicit Association Test is designed to measure:

- a.** verbal ability
- b.** unconscious stereotyping
- c.** hidden mathematical ability
- d.** dream content

Ans:- B

161. How does naive psychology differ from phenomenology?

- a.** Phenomenology uses reaction-time methods

- b.** Phenomenology is not necessarily concerned with how people think about their own mental processes
 - c.** Phenomenology is no longer actively studied in the field
 - d.** Phenomenology uses people's self-reported ideas about their own cognitions and behaviors
- Answer: d. Phenomenology uses people's self-reported ideas about their own cognitions and behaviors

162. Social cognition is influenced heavily by _____ from _____ cognitive psychology.

- a.** Theory
- b.** Models
- c.** Methods
- d.** All of the above

Answer: c. Methods

163. Who proposed the configural and algebraic models of social cognition?

- a.** Solomon Asch
- b.** Kurt Lewin
- c.** Immanuel Kant
- d.** A and B

Answer: a. Solomon Asch

164. Asking people about their own thoughts and behaviors is a technique used by:

- a.** Behaviorists
- b.** Elementalists
- c.** Gestalt psychologists
- d.** B and C

Answer: d. B and C

165. According to Kurt Lewin, behavior is determined in part by:

- a.** Emotion
- b.** Experience
- c.** Motivation
- d.** A and C

Answer: d. A and C

166. Field theory is more consistent with:

- a.** An elemental approach
- b.** A holistic approach
- c.** A and B
- d.** Neither A nor B

Answer: b. A holistic approach

167. Why did researchers stop relying on introspection?

- a. Studying cognition was not important
- b. Results from introspection were not reproducible
- c. Research subjects behave differently in private than they do in public
- d. Introspection data were difficult to analyze

Answer: b. Results from introspection were not reproducible

168. During the 1960s, social psychology largely ceased to study:

- a. Behavior
- b. Cognition
- c. A and B
- d. Neither A nor B

Answer: d. Neither A nor B

169. Social and cognitive psychologists use computers for:

- a. Measuring cognition
- b. Simulating cognition
- c. Describing cognition
- d. All of the above

Answer: All of the above

170. If people are viewed as consistency-seekers, then their cognition is influenced by:

- a. Subjective inconsistency
- b. Objective inconsistency
- c. Attributional inconsistency
- d. A and C

Answer: a. Subjective inconsistency

171. "Errors and biases in our impressions of others are caused by motivations." This is true in what view of the social thinker?

- a. Naive scientist
- b. Cognitive miser
- c. A and B
- d. Neither A nor B

Answer: d. Neither A nor B

172. Which technique measures blood flow to different areas of the brain?

- a. EEG
- b. TMS
- c. fMRI
- d. A and C

Answer: c. fMRI

173. Neural evidence suggests that people can think about _____ as having intentions and personality:

- a. Geometric shapes
- b. Dogs
- c. Homeless people
- d. A and B

Answer: d. A and B

174. When people engage in social cognition, their mPFC responses are often:

- a. Much stronger than when they are resting
- b. Not very different from when they are resting
- c. Are different levels of analysis of the same social psychological phenomena
- d. Are not important to cognitive psychologists

Answer: c.

175. Brains and culture:

- A. Cannot be studied in the same experiment
- B. Are competing explanations for the same social psychological phenomena
- C. Are different levels of analysis of the same social psychological phenomena

- a. Influence
- b. Are influenced by
- c. A and B
- d. Neither A nor B

Answer: c. A and B

176. The choice between automatic and controlled processes is:

- a. Typically automatic
- b. Typically controlled
- c. Always automatic
- d. Always controlled

Answer: a. Typically automatic

177. Proceduralized judgments are:

- a. Developed without practice
- b. Preemptive over non-proceduralized judgments
- c. Slower than non-proceduralized judgments
- d. Deliberate and thoughtful

Answer: b. Preemptive over non-proceduralized judgments

178. Judgments about others' _____ are often automatic.

- a. Traits
- b. Behavior
- c. A and B

d. Neither A nor B

Answer: a. Traits

179. Automatic and controlled processes can be triggered by:

a. Subliminal primes

b. Supraliminal primes

c. A and B

d. Neither A nor B

Answer: c. A and B

180. An ironic rebound effect:

a. Occurs during the period of time when one is asked to suppress thoughts

b. Occurs when one is no longer attempting to suppress thoughts

c. Can be prevented by substituting different thoughts for the unwanted thoughts

d. B and C

Answer: a. Occurs when one is no longer attempting to suppress thoughts

181. Goal-directed automaticity is:

a. Adaptive

b. Maladaptive

c. A and B

d. Neither A nor B

Answer: c. A and B

182. The conscious will is an example of:

a. Automatic process

b. Controlled process

c. Intention

d. Behavior

Answer: b. Controlled process

183. First-order consciousness necessarily involves:

a. Being mindful

b. Having self-esteem

c. Thinking about one's own thoughts

d. Causing one's own behavior

Answer: a. Being mindful

184. Mind-wandering is an example of:

a. Stimulus-dependent thought

b. Stimulus-independent thought

c. Unconscious thought

d. Default network deactivation

Answer: b. Stimulus-independent thought

185. Trying to predict your roommate is an example of:

- a. Operant thought
- b. Respondent thought
- c. A and B
- d. Neither A nor B

Answer: a. Operant thought

186. _____ is a thought- sampling technique frequently used outside the laboratory:

- a. Experience sampling
- b. Think-aloud paradigm
- c. Videotaping
- d. A and C

Answer: a. Experience sampling

187. It is possible to study people's thoughts in a useful way when:

- a. People report on their thoughts while they are happening
- b. People report on the content of their thoughts
- c. People report on their thought processes
- d. A and B

Answer: d. A and B

188. The human need to belong preempts:

- a. The need for understanding
- b. The need for social control
- c. Controlled processes in social cognition
- d. All of the above

Answer: a. The need for understanding

189. The dual-process model and continuum model of impression formation:

- a. Do not depend on motivation
- b. Both propose stable cognitive representations at different stages of impression formation
- c. Both suggest distinct rules for proceeding to each stage of impression formation
- d. Both involve an interplay of automatic and controlled processes

Answer: d. Both involve an interplay of automatic and controlled processes

190. Does a person's self-concept typically change, or does it mostly stay the same?

- a. The self-concept remains constant for most people most of the time
- d. All of the above

Answer: d. All of the above

191. When we process information related to our own self-schemas, brain activity resembles _____ processes, but when we process information unrelated to our own self-schemas, brain activity resembles more _____ processes.

- a. Social judgment/non-social judgment
- b. Non-social judgment/social judgment
- c. Automatic/controlled
- d. Controlled/automatic

Answer:c. Automatic/controlled

192. The relation between individual self-esteem and life satisfaction is ___ in _____ interdependent cultures than it is in independent cultures.

- a. Higher
- b. Lower
- c. More stable
- d. The same

Answer: b. Lower

193. What is related to whether the Behavioral Activation System (BAS) or Behavioral Inhibition System (BIS) is activated?

- a. Different people tend to activate BAS or BIS more frequently
- b. Different situations lead to more BAS or BIS activation
- c. The left hemisphere is related to BAS and right hemisphere is related to BIS
- d. All of the above

Answer: d. All of the above

194. If a person notices a difference between the actual self and ideal self, what type of regulatory focus is activated?

- a. Promotion focus
- b. Prevention focus
- c. Self focus
- d. Other focus

Answer: a. Promotion focus

195. Researchers have shown that well-being depends in part on regulatory fit, in other words a match between _____ and _____

- a. Actual self/ideal self
- b. Actual self/ought self
- c. Ideal self/ought self
- d. Goals/regulatory focus

Answer: d. Goals/regulatory focus

196. What is one reason why people might drink alcohol or watch television after a bad day?

- a. Reduce prevention focus
- b. Reduce regulatory fit
- c. Reduce self-focus
- d. Reduce other-focus

Answer:c. Reduce self-focus

197. In order to regulate ourselves effectively, we depend on:

- a. Reasoned responses
- b. Hedonic emotions
- c. Self-conscious emotions
- d. Both A and C

Answer: d. Both A and C

198. Which needs are satisfied by holding positive illusions about the self?

- a. Self-verification
- b. Self-improvement
- c. Self-enhancement
- d. Accuracy

Answer: c. Self-enhancement

199. People who hold self-enhancing views tend to be:

- a. More receptive to negative feedback
- b. More defensive about negative feedback
- c. More dismissive of negative feedback
- d. Both B and C

Answer: d. Both B and C

200. Elevated cortisol levels indicate:

- a. Increased stress
- b. Increased self-esteem
- c. Increased attachment to close others
- d. Reduced heart rate

Answer:a. Increased stress

201. People who are motivated by self-enhancement seek a self- assessment that is:

- a. As realistic as possible
- b. As positive as possible
- c. Adequately positive
- d. Similar to others' assessments of them

Answer:c. Adequately positive

202. According to terror management theory, what acts as a buffer that reduces people's anxiety about death?

- a. Self-esteem
- b. Self-verification
- c. Endorsement of cultural views
- d. Both A and C

Answer: c. Endorsement of cultural views

203. What process does simulation theory describe?

- a. Inferring another person's mental state by imagining one's own mental state in that situation
- b. Inferring one's own mental state by imagining how another person might react to the situation
- c. Both A and B
- d. Neither A nor B

Answer: a. Inferring another person's mental state by imagining one's own mental state in that situation

204. In causal reasoning, when do we shift from more automatic processing to more thoughtful, controlled processing?

- a. When a result is unexpected
- b. When a result is negative
- c. When a result is ambiguous
- d. Both A and B

Answer: d. Both A and B

205. When trying to attribute the reasons for another person's actions, people most commonly implicate:

- a. The situation the person was in at the time of the action
- b. The person's enduring situation
- c. The person's disposition at the time of the action
- d. The person's enduring disposition

Answer: d. The person's enduring disposition

206. Forming dispositional attributions about others tends to be:

- a. Uncontrollable
- b. Very fast
- c. Automatic
- d. Both B and C

Answer: d. Both B and C

207. Why do people form attributions?

- a. They are motivated to predict future social events
- b. They are motivated to control future social events
- c. They are motivated to increase their own self-esteem
- d. Both A and B

Answer: d. Both A and B

208. What did Heider mean by "commonsense psychology?"

- a. The thought processes involved in everyday judgments
- b. How people understand their own thought processes
- c. How people's intuitions about psychology are most often correct
- d. None of the above

Answer: b. How people understand their own thought processes

209. What factors go into a person's capacity to complete an action?

- a. Ability
- b. Environmental forces
- c. Intentions
- d. Both A and B

Answer: d. Both A and B

210. According to Jones and Davis's Correspondent Inference Theory, we find a person's actions to be most informative about invariant dispositions when:

- a. The action depends on the person's situation
- b. The action is judged to be intentional
- c. The action seems to be caused by a consistent goal
- d. Both B and C

Answer: d. Both B and C

211. According to Correspondent Inference Theory, if a person's behavior is low in social desirability, then a social perceiver will:

- a. Attribute the behavior to the situation
- b. Attribute the behavior to the person's disposition
- c. Find the behavior uninformative
- d. Both A and C

Answer: b. Attribute the behavior to the person's disposition

212. According to Correspondent Inference Theory, people are more likely to form dispositional attributions about someone's choice when:

- a. There are more noncommon effects between the chosen and nonchosen alternatives
- b. There are fewer noncommon effects between the chosen and nonchosen alternatives
- c. The choice was hedonically irrelevant
- d. Both B and C

Answer: d. Both B and C

213. What type of model is Kelley's Covariation Model?

- a. A *positive* model: it describes how people actually form attributions in social situations based on distinctiveness, consistency and consensus
- b. A *normative* model: it describes an idealized set of rules for how people should form attributions when given optimal information about distinctiveness, consistency and consensus
- c. A *qualitative* model: it describes general tendencies but not quantitative predictions of how people might form attributions when given information about distinctiveness, consistency and consensus
- d. Both B and C

Answer: b. A *normative* model: it describes an idealized set of rules for how people should form attributions when given optimal information about distinctiveness, consistency and consensus

214. When forming attributions, which type of information do social perceivers rely on the *least*?

- a. Distinctiveness
- b. Consistency
- c. Consensus

d. None of the above

Answer: c. Consensus

215. Although findings about misattribution of arousal have turned out not to be strong enough to suggest clinical applications, these findings have been influential nonetheless. What did Schachter and Singer (1962) find in their study that began this line of research?

a. Participants who were given epinephrine and not given accurate information about the side effects reported feeling euphoric or angry

b. Participants who were given epinephrine and were given accurate information about the side effects reported feeling euphoric or angry

c. Participants who were not given epinephrine and were given accurate information about the side effects reported feeling euphoric or angry

d. None of the above

Answer: a. Participants who were given epinephrine and not given accurate information about the side effects reported feeling euphoric or angry

216. According to Bem's Self Perception Theory, if a person has a given job, under what circumstances will the person infer that they enjoy the job the most?

a. If they are paid very well for the job

b. If they are paid very poorly for the job

c. If their coworkers enjoy the job

d. Both B and C

Answer: b. If they are paid very poorly for the job

217. When people are cognitively busy, for example when they are busy self-regulating, how will this affect their attributions about others' behavior?

a. They will pay less attention to the context or situation

b. They will pay less attention to the person's actual behavior

c. They will make more dispositional attributions

d. Both A and C

Answer: b. Both A and C

218. When are people relatively less likely to exhibit the fundamental attribution error (or correspondence bias)?

a. When forming attributions about people they know well

b. When forming attributions about the self

c. Both A and B

d. Neither A nor B

Answer: c. Both A and B

219. Which of the following environmental law allows private rights to use a resource that is, groundwater, by viewing it as an attachment to the land?

A. Easement Act

B. Indian Fisheries Act

C. Factories Act

D. All of the above

Ans: A

220. Which environmental law establishes two sets of penal offences whereby the government can sue any person who uses dynamite or other explosive substance in any way (whether coastal or inland) with intent to catch or destroy any fish or poisonous fish in order to kill?

- A. Easement Act
- B. Indian Fisheries Act
- C. Factories Act
- D. Coastal Regulation Zone Notification

Ans: B

221. Consider the following statement (s) related to the Coastal Regulation Zone Notification.

- I. It puts regulations on various activities, including construction, are regulated.
- II. It gives some protection to the backwaters and estuaries.

Code:

- A. Only I
- B. Only II
- C. Both I & II
- D. Neither I nor II

Ans: C

222. Consider the following statement (s) related to the Water (Prevention and Control of Pollution) Act.

- I. It provides for the protection of birds and animals and for all matters that are connected to it whether it be their habitat or the waterhole or the forests that sustain them.
- II. It aims to deal with waste arising from ships along the coastal areas within a specified radius.

Code:

- A. Only I
- B. Only II
- C. Both I & II
- D. Neither I nor II

Ans: D

223. Which of the following environmental law empowers the central and state pollution control boards to meet with grave emergencies of air pollution?

- A. Air (Prevention and Control of Pollution) Amendment Act
- B. Environment (Protection) Act
- C. Air (Prevention and Control of Pollution) Rules
- D. Objective of Hazardous Waste (Management and Handling) Rules

Ans: A

224. Match the following

- a. National Environmental Tribunal Act 1. 1995

- b.** Public Liability Insurance Act and Rules 2. 1991
- c.** National Environment Appellate Authority Act 3. 1997
- d.** Biomedical waste (Management and Handling) Rules

Code:

a	b	c	d
A. 43	2	1	
B. 41	3	2	
C. 12	3	4	
D. 14	3	2	

Ans: C

225. Consider the following statement (s) related to the Biological Diversity Act.

I. This has been laid down for the regulation of production and consumption of ozone depleting substances.

II. It is an act to provide for the conservation of biological diversity, sustainable use of its components, and fair and equitable sharing of the benefits arising out of the use of biological resources and knowledge associated with it.

Code:

- A.** Only I
 - B.** Only II
 - C.** Both I & II
 - D.** Neither I nor II
- Ans: B

226. Which of the following act of environment and ecology is associated with 'law apply to every municipal authority responsible for the collection, segregation, storage, transportation, processing, and disposal of municipal solid wastes'?

- A.** Municipal Solid Wastes (Management and Handling) Rules
- B.** Environment (Siting for Industrial Projects) Rules
- C.** Ozone Depleting Substances (Regulation and Control) Rules
- D.** Batteries (Management and Handling) Rules

Ans: A

227. Consider the following statement (s) related to the Public Liability Insurance Act and Rules.

I. It was drawn up to provide for public liability insurance for the purpose of providing immediate relief to the persons affected by accident while handling any hazardous substance.

II. This law puts regulations on various activities, including construction, are regulated. It gives some protection to the backwaters and estuaries.

Code:

- A.** Only I
- B.** Only II
- C.** Both I & II
- D.** Neither I nor II

Ans: A

228. Which of the following is the oldest environmental law in India?

- A.** Wildlife Protection Act
- B.** River Board Act
- C.** Factories Act
- D.** Easement Act

Ans: D

229. The world as World Environmental day is celebrated on:

- (a)** December 1
- (b)** June 5
- (c)** November 14
- (d)** August 15

Ans: B

230. The provisions for environmental protection in the constitution were made in:

- (a)** 1976
- (b)** 1950
- (c)** 1982
- (d)** 1960

Ans: A

231. The provisions of environmental protection in the constitution were made under:

- (a)** Article 5-A
- (b)** Article 21-B
- (c)** Article 27-B (h)
- (d)** Article 48-A and Article 51-A (g)

Ans: D

232. The first of the major environmental protection act to be promulgated in India was:

- (a)** Water Act
- (b)** Air Act
- (c)** Environmental Act
- (d)** Noise Pollution Rule

Ans: A

233. The Forest (Conservation) Act was enacted in the year:

- (a)** 1986
- (b)** 1974
- (c)** 1980
- (d)** 1972

Ans: C

234. The Forest (Conservation) Act extends to the whole of India except:

- (a)** Uttar Pradesh

- (b) Karnataka
 - (c) Jammu and Kashmir
 - (d) Haryana
- Ans: C

235. Penalty for conservation of the provisions of the Forest Act is under:

- (a) Section 3A
- (b) Section 4A
- (c) Section 12A
- (d) Section 8A

Ans: A

236. Offences by the Authorities and Government Department in Forest Act is under:

- (a) Section 5B
- (b) Section 5A
- (c) Section 3B
- (d) Section 8A

Ans: C

237. The Wildlife (Protection) Act was enacted in the year:

- (a) 1986
- (b) 1974
- (c) 1994
- (d) 1972

Ans: D

238. The power to declare an area as a sanctuary or national park of central Government is Wildlife (Protection) Act is under:

- (a) Section 38
- (b) Section 39
- (c) Section 18
- (d) Section 27

Ans: A

239. The Wildlife (Protection) Act contains:

- (a) 7 Chapters
- (b) 6 Chapters
- (c) 5 Chapters
- (d) 8 Chapters

Ans: A

240. The Wildlife (Protection) Act contains:

- (a) 66 Sections

- (b)** 6 Sections
 - (c)** 7 Sections
 - (d)** 46 Sections
- Ans: A

241. The Water (Prevention and Control of Pollution) Act was enacted in the year:

- (a)** 1986
- (b)** 1974
- (c)** 1994
- (d)** 1975

Ans: B

242. The Water Act contains:

- (a)** 4 Chapters
- (b)** 5 Chapters
- (c)** 7 Chapters
- (d)** 8 Chapters

Ans: D

243. The Water Act have:

- (a)** 64 Sections
- (b)** 68 Sections
- (c)** 45 Sections
- (d)** 62 Sections

Ans: A

244. The functions of Central Board are given under:

- (a)** Section 16
- (b)** Section 19
- (c)** Section 25
- (d)** Section 24

Ans: A

245. The functions of State Board are given under:

- (a)** Section 16
- (b)** Section 17
- (c)** Section 21
- (d)** Section 45

Ans: B

246. Power to give directions are declared under:

- (a)** Section 16
- (b)** Section 17

(c) Section 18

(d) Section 25

Ans: C

247. In the Water Act the entire National Capital Territory of Delhi has been declared as water pollution prevention control area under:

(a) Section 21

(b) Section 23

(c) Section 19

(d) Section 24

Ans: C

248. The Air (Prevention and Control of Pollution) Act was enacted in the year:

(a) 1981

(b) 1996

(c) 2000

(d) 1974

Ans: A

249. The Air Act contains:

(a) 5 Chapters

(b) 6 Chapters

(c) 7 Chapters

(d) 8 Chapters

Ans: C

250. The Air Act have

(a) 56 Section

(b) 54 Section

(c) 58 Section

(d) 62 Section

Ans: B

251. Noise pollution has been inserted as pollution in the Air Act in:

(a) 1981

(b) 1987

(c) 1982

(d) 2000

Ans: B

252. The Environmental (Protection) Act was enacted in the year:

(a) 1986

(b) 1992

(c) 1984

(d) 1974

Ans: A

253. The EPA consists:

(a) 2 Chapters

(b) 4 Chapters

(c) 8 Chapters

(d) 7 Chapters

Ans: B

254. The EPA contains:

(a) 25 Sections

(b) 12 Sections

(c) 26 Sections

(d) 14 Sections

Ans: C

255. NGOs stands for:

(a) Non-Governmental Organization

(b) Nine-Governmental Organization

(c) Non-Gained Organizations

(d) National-Grade Organization

Ans: A

256. The Women's Population in the world is almost:

(a) Half

(b) One-fourth

(c) One-third

(d) One fifth

Ans: A

257. Literate women can help in:

(a) Reducing infant mortality rate

(b) Reducing population growth

(c) Promoting female children education

(d) All of the above

Ans: D

258. Which of the following is not the effect of modern agriculture?

(a) Nitrate pollution

(b) Eutrophication

(c) Biomagnification

(d) Ozone depletion

Ans: D

259. Housing affects:

- (a) Neighbourhood
- (b) Energy consumption
- (c) Water consumption
- (d) All of the above

Ans: D

260. The human activity, among the following, which causes maximum environmental pollution having regional and global impacts, is:

- (a) Urbanization
- (b) Industrialisation
- (c) Agriculture
- (d) Mining

Ans: B

261. Production, transformation and use of energy are the major problems of:

- (a) Industrial activity
- (b) Sustainable development
- (c) Global warming
- (d) Acid rain

Ans: A

262. A chemical industry is not a cause of:

- (a) Air pollution
- (b) Noise pollution
- (c) Water pollution
- (d) Nuclear pollution

Ans: D

263. Electronic waste is the adverse effect of:

- (a) Industry
- (b) Agriculture
- (c) Housing
- (d) Mining

Ans: A

264. Extraction of mineral and metal from the earth is:

- (a) Agriculture
- (b) Transportation
- (c) Mining
- (d) Sustainable development

Ans: C

265. Underground and open cast is the methods of:

- (a) Agriculture
- (b) Mining
- (c) Housing
- (d) Transportation

Ans: B

266. This is not the effect of transportation:

- (a) Air emission
- (b) Material consumption
- (c) Solid waste generation
- (d) Acid mine drainage

Ans: D

267. In EIA the decision to hold hearing has to be made within:

- (a) 5 days
- (b) 10 days
- (c) 20 days
- (d) 30 days

Ans: D

268. SPCB's are required to give notice in how many newspapers mentioning the date, time and place of public hearing:

- (a) 2
- (b) 4
- (c) 6
- (d) 8

Ans: A

269. 'Meeting the needs of the present without compromising the ability of future generation to meet their own need' is given by:

- (a) Brundtland
- (b) Mahatma Gandhi
- (c) Maathai
- (d) Sunderlal Bahugana

Ans: A

270. The idea of sustainable development was conceived in early: (a) 1950

- (b) 1960
- (c) 1970
- (d) 1980

Ans: D

271. How many agreement are therein Agenda – 21?

- (a) 4
- (b) 5
- (c) 6
- (d) 7

Ans: B

272. Sustainable development will not aim at:

- (a) Social economic development which optimise the economic and societal benefits available in the present, without spoiling the likely potential for similar benefits in the future
- (b) Reasonable and equitable distributed level of economic wellbeing that can be perpetuated continually
- (c) Development that meets the need of the present without compromising the ability of future generation to meet their own needs
- (d) Maximising the present day benefits through increased resource consumption

Ans: D

273. Which of the following statements in relation to sustainable development is not true?

- (a) Sustainable development is defined as the development that meets the needs of present without compromising the ability of our future generations to meet their own needs
- (b) Sustainability has the main objective of purely focussing on the natural environment
- (c) Sustainable development of various countries and the entire world is the only solution left with mankind to survive for a longer period on Earth
- (d) Sustainable development not only considers the protection of the environment but also the maintenance of economic viability as well as the social and ethical considerations

Ans: B

274. The maximum number of individuals that can be supported by a given environment is called

- (a) Biotic potential
- (b) Carrying capacity
- (c) Environmental resistance
- (d) Population size

Ans: B

275. Supporting capacity and assimilative capacity are the components of

- (a) Carrying capacity
- (b) Holding capacity
- (c) Containing capacity
- (d) Capturing capacity

Ans: A

276. Social, economical and ecological equity is the necessary condition for achieving

- (a) Social development
- (b) Economical development
- (c) Sustainable development
- (d) Ecological development

Ans: C

277. What type of appeal is more likely to elicit help from a stranger, according to the separate process view?

- a. Trying to make the stranger feel guilty about not helping
- b. Emphasizing the rewards of helping
- c. Both A and B
- d. Neither A nor B

Answer: b. Emphasizing the rewards of helping

278. A woman watches as a boy gives some money to a homeless person. The woman subsequently helps another person out of a general feeling of human goodness. Which hypothesis might predict this result?

- a. Social outlook
- b. Focus of attention
- c. Mood maintenance
- d. All of the above

Answer: a. Social outlook

279. What is true about people in a cheerful mood?

- a. They initiate fewer interactions
- b. They aggress against others less often
- c. They reward themselves more
- d. Both B and C

Answer: d. Both B and C

280. Why might happy people be more helpful?

- a. They want to stay in a happy mood
- b. They like others more when they are happy
- c. They are more optimistic when they are happy
- d. All of the above

Answer: d. All of the above

281. Mood-congruent memory effects are likely to be:

- a. Motivated
- b. Automatic
- c. Controlled
- d. All of the above

Answer: d. All of the above

282. Do negative events tend to be memorable?

- a. Mostly they tend not to be as memorable as positive events

- b. Yes, for people high in neuroticism
- c. Yes, for depressed people
- d. All of the above

Answer: d. All of the above

283. In the context of embodied cognition research, what does “offline cognition” mean?

- a. Unobtrusively manipulating facial expressions instead of mood states
- b. Recreating perception without the original targets
- c. Presenting stimuli in different sensory modalities
- d. All of the above

Answer: b. Recreating perception without the original targets

284. Which of the below is found to be universally disgusting?

- a. Vermin
- b. Bodily products
- c. Death
- d. None of the above

Answer: d. None of the above

285. Which brain area is NOT implicated in the neuroscience of emotion in decision-making?

- a. Amygdala
- b. vmPFC
- c. dlPFC
- d. None of the above

Answer: d. None of the above

286. Research on the effects of mood on persuasion shows many examples of:

- a. Classical conditioning
- b. Cognitive processes
- c. Automatic processes
- d. All of the above

Answer: d. All of the above

287. How can mood influence attitudes toward an argument?

- a. As an incidental cue
- b. As an influence on how the information is processed
- c. As an influence on the amount of information processed
- d. All of the above

Answer: d. All of the above

288. What kind of studies can support the idea that happiness causes success?

- a. Cross-sectional designs
- b. Longitudinal designs
- c. Both A and B
- d. Neither A nor B

Answer: b. Longitudinal designs

289. What types of stimuli are typically liked more after repeated presentation?

- a. Paintings
- b. Drawings
- c. Photographs
- d. All of the above

Answer: c. Photographs

290. Social judgments are often _____ social memory.

- a. Correlated with
- b. Uncorrelated with
- c. Based on
- d. Cues for

Answer: b. Uncorrelated with

291. This chapter is titled "From Affect to Social Cognition." What aspect of affect is particularly discussed regarding its influence on cognition?

- a. Preference.
- b. Emotion.
- c. Evaluation.
- d. Mood.

Answer: B

292. According to research on moods and helping, those in a positive mood will be encouraged to help others when _____ is/are salient. Those in negative moods will be encouraged to help others when _____ is/are salient.

- a. Rewards, guilt.
- b. Guilt, rewards.
- c. Other's good fortunes, one's own good fortunes.
- d. Both A and C.

Answer: A

293. Which of the following types of moods have been shown to most often facilitate helping behavior?

- a. Negative moods, likely because people will turn to helping behavior to make themselves feel better.
- b. Positive moods, likely because people want to maintain their positive mood by helping others.
- c. Neutral moods, likely because people are more attuned to the needs of others.
- d. All of the above.

Answer: D

294. Which of the following best describes objective self-awareness?

- a. People recalling positive material in positive moods and sometimes recalling negative material in negative moods.
- b. The experience of the self as the target of other's perceptions, often

experiencing the self as failing to live up to ideal standards.

c. One's understanding of who one should be.

d. People coping with threats to their self-worth by endorsing other, unrelated aspects of themselves, thereby addressing self-enhancement needs.

Answer: B

295. Tammy's father taught her the chords to his favorite feel-good song when she was in a bad mood one day. The next day, he asks her to play the song, and Tammy, who is still in a bad mood, cannot remember the chords. Her dad, a social psychologist, assures her that she will remember the chords when she is in a good mood. Her father's assumption aligns with which concept?

a. Mood state-dependent memory.

b. Mood-congruent memory.

c. The fundamental attribution error.

d. Negative state-relief hypothesis.

Answer: B

296. Which of the following demonstrates the mood manipulation in the Velten procedure?

a. Hypnosis.

b. Assuming positive or negative facial expressions.

c. Reading mood-relevant sentences.

d. Listening to mood-laden music.

Answer: C

297. In the affect infusion model, affect has little or no influence on which of the following processing modes?

a. Processing with direct access to prior judgment.

b. Substantive processing.

c. Motivated processing.

d. Both A and C.

Answer: D

298. Which of the following groups reliably demonstrates negative mood congruence?

a. Cheerful people.

b. Depressed people.

c. Extraverts.

d. All of the above.

Answer: B

299. Anna taught Joshua how to draw a horse one day when Joshua was sad. A few days later, Joshua can't recall how to recreate the drawing, but Anna suspects that the next time he is feeling sad, Josh will remember how to draw a horse. Anna's idea exemplifies which of the following memory phenomena:

a. Mood state-dependent memory.

b. Mood-congruent memory.

- c. The fundamental attribution error.
- d. Negative state-relief hypothesis.

Answer: A

300. Mood affects judgment, but even a person in a good mood will not have overly positive judgments:

- a. Of unattractive people.
- b. Of criminals.
- c. When they are highly involved in a situation.
- d. All of the above.

Answer: D

301. Which of the following offers an example of how negative mood affects judgment?

- a. People judge others according to positive applicable traits more when in a negative mood.
- b. Negative moods increase the perceived likelihood of future negative events.
- c. A negative mood can lead people to perceive themselves as having greater social support than they actually have.
- d. All of the above.

Answer: B

302. Which of the following emotions involves an approach orientation, optimism, risk seeking, relatively pleasant judgments when appraising the future, and a facilitation of automatic prejudices?

- a. Anger.
- b. Disgust.
- c. Fear.
- d. Sadness.

Answer: A

303. Research shows that for people high in _____, disgust leads to more severe moral judgments.

- a. Intuition.
- b. Private body consciousness (PBC).
- c. Offline cognition.
- d. Experimental demand.

Answer: B

304. The effects of mood on judgment are more reliably observed in adults than in children,

- a. True.
- b. False.

Answer: A

305. What is an illusory correlation?

- a. Simulations that increase the perceived likelihood of a potential outcome.
 - b. Simulations that reduce the perceived likelihood of a potential outcome.
 - c. Expecting a relationship between two variables when none actually exists.
 - d. The statistical fact that extreme events will, on average, be less extreme when reassessed later.
- Answer: C

306. Activation of which of the following brain areas is implicated with emotional-bodily states during decision-making activities (perhaps what we call “gut feelings”)?

- a. The amygdala.
- b. The insula.
- c. The cerebellum.
- d. The hippocampus.

Answer: B

307. What is a key factor described in the text that influences individual differences in emotional reactivity?

- a. Early life experiences.
- b. Later life experiences.
- c. Current friendships.
- d. All of the above.

Answer: A

308. Mood affects decision-making. According to research presented in the chapter, those in a positive mood are more likely to:

- a. Focus on details, neglecting the big picture.
- b. Correct their stereotypes when unmotivated.
- c. Take more risks if the possible losses are small.
- d. Both B and C.

Answer: C

309. Which of the following is most likely to facilitate creative thinking and rapid decision-making?

- a. Positive mood.
- b. Anger.
- c. Moral intuitions.
- d. Negative mood.

Answer: A

310. What does the affect-as-information approach posit?

- a. People sometimes demonstrate emotional responses to a person who resembles a significant other.
- b. Affective valence tells the self how it should evaluate a stimulus, even when the affect has an irrelevant source.
- c. One can fit a specific occasion, instance, or behavior to a more general prior concept.

d. People attempt to identify what factors give rise to what outcomes by inferring other people's dispositions and mental states from their behavior and its causes.

Answer: B

311. Troy is sitting outside of the library and sees Sam on his scooter far away near the next building. When Sam falls off his scooter, Troy thinks, "Sam is so clumsy, poor guy." But Troy doesn't realize that Sam hit a huge, indiscernible crack in the sidewalk, causing him to fall. Troy's thinking exemplifies:

- a.** The false consensus effect.
- b.** Affective transference.
- c.** The negative state-relief hypothesis.
- d.** The fundamental attribution error.

Answer: D

312. Mood's effect on persuasion varies depending on levels of the individual's:

- a.** Involvement.
- b.** Cognitive activity.
- c.** Entitativity.
- d.** Both A and B.

Answer: D

313. Which scholar proposed the separate-systems view of affect and cognition?

- a.** Joseph P. Forgas.
- b.** Klaus Fiedler.
- c.** Robert B. Zajonc.
- d.** Alice M. Isen.

Answer: C

314. Which of the following supports the separate-systems view?

- a.** The mere exposure effect.
- b.** People can know how they feel about an object before they can recognize it.

Answer: D

315. For which of the following does the mere exposure effect NOT occur reliably?

- a.** Meaningful words.
- b.** Drawings.
- c.** Polygons.
- d.** Photographs.

Answer: B

316. The mere exposure effect is stronger for supraliminal than for subliminal presentation.

- a.** True.
- b.** False.

Answer: B

317. An argument for the cognitive underpinnings of the mere exposure effect offers the mechanism of:

- a. Schema activation.
- b. Affective judgments.
- c. Evaluative content.
- d. All of the above.

Answer: A

318. One theory described in the text proposed two meanings of cognition: cognition1

- Affective judgments are difficult to _____, and verbalize.cognition2
- All of the above._____.

- a. Refers to heuristic processing, refers to substantive processing.
- b. Involves all mental activity, is intellectual knowledge acquisition.
- c. Is intellectual knowledge acquisition, involves all mental activity.
- d. Is intellectual knowledge acquisition, refers to heuristic processing.

Answer: C

319. Agricultural activity such as tilling, harvesting, heating and ventilation are direct consumers of:

- (a) Energy
- (b) Air
- (c) Sun
- (d) Heat

Ans: A

320. Compared to fear, anger makes people feel _____ about the future.

- a. Optimistic
- b. Neutral
- c. Risk-averse
- d. Pessimistic

Answer: a. Optimistic

UNIT – 9

HUMAN DEVELOPMENT AND INTERVENTIONS

Human Development and INTERVENTIONS

What is Developmental processes: Nature, Principles, Factors in development, Stages of Development. Successful aging. Theories of development: Psychoanalytical, Behavioristic, and Cognitive Various aspects of development: Sensory-motor, cognitive, language, emotional, social and moral?

DEVELOPMENTAL PROCESSES: NATURE, PRINCIPLES, FACTORS IN DEVELOPMENT, STAGES OF DEVELOPMENT. SUCCESSFUL AGING. THEORIES OF DEVELOPMENT: PSYCHOANALYTICAL, BEHAVIORISTIC, AND COGNITIVE VARIOUS ASPECTS OF DEVELOPMENT: SENSORY-MOTOR, COGNITIVE, LANGUAGE, EMOTIONAL, SOCIAL AND MORAL DEVELOPMENTAL PROCESSES: NATURE, PRINCIPLES, FACTORS IN DEVELOPMENT, STAGES OF DEVELOPMENT

AN DEVELOPMENTAL PSYCHOLOGY

Developmental psychology is the scientific study of changes that occur in human beings over the course of their lives. This field examines change and development across a broad range of topics, such as motor skills and other psycho-physiological processes; cognitive development involving areas like problem solving, moral and conceptual understanding; language acquisition; social, personality, and emotional development; and self-concept and identity formation. Developmental psychology explores the extent to which development is a result of gradual accumulation of knowledge or stage-like development, as well as the extent to which children are born with innate mental structures as opposed to learning through experience.

NATURE VERSUS NURTURE

A significant issue in developmental psychology is the relationship between the innateness of an attribute (whether it is part of our nature) and the environmental effects on that attribute (whether it is influenced by our environment, or nurture). This is often referred to as the nature vs. nurture debate, or nativism vs. empiricism. A nativist ("nature") account of development would argue that the processes in question are innate and influenced by an organism's genes. Natural human behavior is seen as the result of already-present biological factors, such as genetic code. An empiricist ("nurture") perspective would argue that these processes are acquired through interaction with the environment. Nurtured human behavior is seen as the result of environmental interaction, which can provoke changes in brain structure and chemistry. For example, situations of extreme stress can cause problems like depression. The nature vs. nurture debate seeks to understand how our personalities and traits are produced by our genetic makeup and biological factors, and how they are shaped by our environment, including our parents, peers, and culture. For instance, why do biological children sometimes act like their parents? Is it because of genetic similarity, or the result of the early childhood environment and what children learn from their parents?

INTERACTION OF GENES AND THE ENVIRONMENT

Today, developmental psychologists rarely take such polarized positions (either/or) with regard to most aspects of development; instead, they investigate the relationship between innate and environmental influences (both/and). Developmental psychologists will often use the biopsychosocial model to frame their research: this model states that biological, psychological, and social (socio-economical, socio-environmental, and cultural) factors all play a significant role in human development. We are all born with specific genetic traits inherited from our parents, such as eye color, height, and certain personality traits. Beyond our basic genotype, however, there is a deep interaction between our genes and our environment: our unique experiences in our environment influence

whether and how particular traits are expressed, and at the same time, our genes influence how we interact with our environment (Diamond, 2009; Lobo, 2008). There is a reciprocal interaction between nature and nurture as they both shape who we become, but the debate continues as to the relative contributions of each.

Heritability refers to the origin of differences among people; it is a concept in biology that describes how much of the variation of a trait in a population is due to genetic differences in that population. Individual development, even of highly heritable traits such as eye color, depends not only on heritability but on a range of environmental factors, such as the other genes present in the organism and the temperature and oxygen levels during development. Environmental inputs can affect the expression of genes, a relationship called gene-environment interaction. Genes and the environment work together, communicating back and forth to create traits.

RESEARCH METHODS

Developmental psychology employs many of the research methods used in other areas of psychology; however, infants and children cannot be tested in the same ways as adults. To study changes in individuals over time, developmental psychologists use systematic observation, including naturalistic or structured observation; self-reports, which could be clinical interviews or structured observation; clinical or case study methods; and ethnography or participant observation. Three research methods used include the experimental, correlational, and case study approach.

EXPERIMENTAL RESEARCH

The experimental method involves actual manipulation of treatments, circumstances, or events to which the participant or subject is exposed. This design points to cause-and-effect relationships and thus allows for strong inferences to be made about causal relationships between the manipulation of one or more independent variables and subsequent subject behavior. A limit to this method is that the artificial environment in which the experiment is conducted may not be applicable to the general population.

CORRELATIONAL RESEARCH

The correlational method explores the relationship between two or more events by gathering information about these variables without researcher intervention. The advantage of using a correlational design is that it estimates the strength of a relationship among variables in the natural environment. However, the limitation is that it can only indicate that a relationship exists between the variables; it cannot determine which one caused the other.

CASE STUDY

In a case study, developmental psychologists collect a great deal of information from one individual in order to better understand physical and psychological changes over his or her lifespan. Data can be collected through the use of interviews, structured questionnaires, observation, and test scores. This particular approach is an excellent way to better understand individuals who are exceptional in some way, but it is especially prone to researcher bias in interpretation, and it is difficult to generalize conclusions to the larger population.

RESEARCH DESIGNS

Regardless of whether studies employ the experimental, correlational, or case study methodology, they can use research designs or logical frameworks to make key comparisons within research studies. These include longitudinal, cross-sectional, sequential, and microgenetic designs.

LONGITUDINAL DESIGN

In a longitudinal study, a researcher observes many individuals born at or around the same time (a cohort) and carries out new observations as members of the cohort age. This method can be used to draw conclusions about which types of development are universal (or normative) and occur in most members of a cohort. Researchers may also observe ways that development varies between individuals and hypothesize the causes of such variation. Longitudinal studies often require large amounts of time and funding, making them unfeasible in some situations. Also, because members of a cohort all experience historical events unique to their generation, apparently normative developmental trends may only be universal to the cohort itself.

THE PRINCIPLES OF DEVELOPMENTAL PSYCHOLOGY

Life-span developmental psychology is the field of psychology which involves the examination of both constancy and change in human behaviour across the entire life span, that is, from conception to death (Baltes, 1987). Developmental psychologists are concerned with diverse issues ranging from the growth of motor skills in the infant, to the gains and losses observed in the intellectual functioning of the elderly.

The goal of study in developmental psychology is to further our knowledge about how development evolves over the entire life span, developing a knowledge of the general principles of development and the differences and similarities in development across individuals. The range of topics comprising the study of modern psychology is vast, and encompasses sub-areas as diverse as social psychology, comparative psychology, the study of learning, neuropsychology, abnormal psychology, and cognitive psychology.

However, the study of development is possible within each of these areas. Thus, in one sense, developmental psychology can be thought of as an approach that one takes to the broader study of psychology (Buss, 1995). This text focuses on a narrower portion of the life span, specifically, on the time development between conception and adolescence.

important in its own right but it also has the potential to significantly inform us about the nature of human development. By studying the earlier forms of a behaviour and the changes which behaviour undergoes, we can gain a better understanding of the 'end product', that is, adult behaviour. While this text does focus specifically on children's development, the wider principles of lifespan developmental psychology (which we discuss shortly) apply equally to this area as they do to the study of development across the life span.

When we speak of development, to what, in fact are we referring? One frequently used definition refers to development as patterns of change over time which begin at conception and continue throughout the life span. Development occurs in different domains, such as the biological (changes in our physical being), social (changes in our social relationships), emotional (changes in our emotional understanding and experiences), and cognitive (changes in our thought processes). Some developmental psychologists prefer to restrict the notion of development only to changes which lead to qualitative reorganizations in the structure of a behaviour, skill or ability (Crain, 2000).

For example, Heinz Werner (1957) argued that development refers only to changes which increase the organization of functioning within a domain. Werner believed that development consisted of two processes: integration and differentiation. Integration refers to the idea that development consists of the integration of more basic, previously acquired behaviours into new, higher level

structures. For example, according to Piaget (1952), the baby who learns to successfully reach for objects has learned to coordinate a variety of skills such as maintaining an upright posture, moving the arm, visually coordinating the position of the hand and the object, and grasping the object under an integrated structure called a scheme. New developments build on and incorporate what has come before. Differentiation refers to the idea that development also involves the progressive ability to make more distinctions among things, for example, learning to adjust one's grasp to pick up small objects (which requires the use of the fingers and fine motor control) versus larger objects (which only require closing the hand around the object and less fine motor control). Werner defined development as a combination of these two processes of integration and differentiation; he saw development as a process of increasing hierarchical integration and increasing differentiation. Of course, Werner's view of development is by no means universally accepted within developmental psychology. Many developmentalists argue that anything which evidences change over time is relevant to the study of development (Crain, 2000). Thus, this debate remains a tension within the study of human development.

PRINCIPLES OF LIFE-SPAN DEVELOPMENT

Paul Baltes (1987) has articulated a set of principles which guide the study of human development within a life-span framework. Baltes argues that these principles form a family of beliefs which specify a coherent view of the nature of development. It is the application of these beliefs as a coordinated whole which characterizes the life-span approach. In this book, although we focus on development in children, we will take a life-span approach to the study of development. The first of the principles which Baltes (1987) discussed is the belief that development is lifelong. This belief has two separate aspects. First, the potential for development extends across the entire life span: there is no assumption that the life course must reach a plateau or decline during adulthood and old age. Second, development may involve processes which are not present at birth but emerge throughout the life span. Development is also multidimensional and multidirectional. Multidimensionality refers to the fact that development cannot be described by a single criterion such as increases or decreases in a behaviour. The principle of multidirectionality maintains that there is no single, normal path that development must or should take. In other words, healthy developmental outcomes are achieved in a wide variety of ways.

Development is often comprised of multiple abilities which take different directions, showing different types of change or constancy. Another principle of development is the belief that development involves both gains and losses. According to Baltes, any developmental process involves aspects of growth and decline. For example, formal schooling increases a child's knowledge base and develops their cognitive abilities but also restricts their creativity as they learn to follow rules defined by others. These two aspects of growth and decline need not occur in equal strength, and, moreover, the balance between gains and losses can change with time.

Contextualism in developmental psychology As we have seen, Baltes (1987) stressed the importance of contextualism to the study of life-span development. In order to create a coherent framework for understanding contextual influences, Baltes proposed a three-factor model of contextual influences on development (Baltes, Reese, & Lipsitt, 1980). The first factor is normative age-graded influences. These are the biological and environmental influences that are similar for individuals in a particular age group. Examples of normative age-graded influences are events such as puberty or the entry into formal schooling.

A second type of influence is what Baltes referred to as normative history-graded influences. These

are biological and environmental influences associated with historical periods in time which influence people of a particular generation. For example, the effects of World War II on much of the world's population or the changes in the structure of government experienced by the people of the Soviet Union during the 1980s would constitute examples of normative history-graded influences. Nonnormative life events are unusual occurrences that have a major impact on an individual's life. The occurrence of these events is relatively unique to an individual and is not tied to a historical time period. Moreover, the influence of these events often does not follow a typical developmental course. Being struck with a major illness or losing a parent in childhood are examples of this kind of contextual influence. It is important for developmentalists to recognize that explanations of behavioural development are likely to be complex and require consideration of the wide variety of possible influences on a given individual's development.

THEMES AND ISSUES IN DEVELOPMENTAL PSYCHOLOGY

A number of major themes have emerged in the study of child development, themes which are recurrent across the various domains of study. For example, the debate over whether development is best characterized as driven by biological or environmental factors has guided study within areas as diverse as emotional, social and cognitive development. The same is true for each of the other major themes which we will examine. After you become familiar with each of the issues described here, you should think about these themes as you read Chapters 4 through 10. You should be able to identify where these themes occur when studying the areas of development discussed in the last seven chapters.

CONTINUITY AND DISCONTINUITY

An important question which continually confronts the researcher in the study of child development is how to best characterize the nature of developmental change. There are two contrasting positions on developmental change. According to those who hold to the first position, development is best viewed as a continuous process. That is, development is conceived of as a process of the gradual accumulation of a behaviour, skill, or knowledge. On this model, development proceeds in a smooth and orderly fashion, with each change building on previous abilities. In contrast, those who hold to the second view would suggest that developmental change is best characterized as discontinuous in nature. These theorists suggest that behaviours or skills often change qualitatively across time, and that new organizations of behaviours, skills, or knowledge emerge in a rather abrupt or discrete fashion.

The notion of a stage of development is central to discontinuous views of development. A stage of development can be thought of as a particular organization of the child's knowledge and behaviour that characterizes their development at a particular point in time. The movement to a new stage of development means that a qualitative reorganization of previous knowledge or behaviour has taken place. For example, Piaget (1952) believed that between 7 to 11 years of age, children's thinking could be described as concrete, in that it is closely tied to the nature of the objects with which they interact. In contrast, during adolescence, thinking becomes more abstract; it is less bound to particular objects and takes into account the possible or hypothetical. It should be clear that these two positions — development viewed as a continuous process or as a discontinuous process — describe development in quite different ways; ways that on the surface are seemingly difficult to reconcile with one another.

Siegler (1998) has argued that whether a particular aspect of development appears to be continuous or discontinuous in nature depends largely on how we choose to examine development. When we

examine the change in a given behaviour at large intervals (e.g., yearly) or in different age groups such as 4-year-olds and 8-year-olds, development will tend to look very discontinuous or stage-like. If we plotted the level of development of some skill over time, the developmental function might look like a staircase, with periods of little change followed by abrupt shifts in the level of performance. In contrast, if we were to examine the behaviour more closely, at smaller intervals, we might find that development took on a much more continuous character. That is, increases in the level of performance would be seen to occur gradually, with no abrupt shifts. We would also find that there is great variability in the methods or strategies that children use to solve problems. Siegler's (1998) own work on children's learning in the domain of mathematics shows that children often use a variety of strategies in their attempts to learn how to add together two numbers. Because learning to decide which strategies work best takes some time, the shifts between the use of different strategies is a gradual process. If we plotted the development of strategy use for addition problems, Siegler claims we would obtain a picture quite different from the staircase model just described. Instead, we would see what he calls 'overlapping waves' of development.

FACTORS IN DEVELOPMENT

Growth and Development Defined?

Although the terms growth and development are used synonymously, they have different meanings biologically. Growth refers to the incremental changes in physical characteristics such as height, weight, size, etc., while development refers to qualitative changes to growth in an orderly and meaningful fashion which results in maturity. Growth and development contribute to each other, are inseparable, and occur simultaneously. For example, most babies, by the time they grow up to be 8 months old, can weigh around 8 to 10 kilograms and can sit up.

10 Factors That Influence the Growth and Development of a Child Nature and nurture both contribute to the growth and development of children. Although what's endowed by nature is constant, nurture tends to make a big difference too. Here are a few factors affecting children's growth and development.

1. HEREDITY

Heredity is the transmission of physical characteristics from parents to children through their genes. It influences all aspects of physical appearance such as height, weight, body structure, the colour of the eye, the texture of the hair, and even intelligence and aptitudes. Diseases and conditions such as heart disease, diabetes, obesity, etc., can also be passed through genes, thereby affecting the growth and development of the child adversely. However, environmental factors and nurturing can bring the best out of the already present qualities in the genes.

2. ENVIRONMENT

The environment plays a critical role in the development of children and it represents the sum total of physical and psychological stimulation the child receives. Some of the environmental factors influencing early childhood development involve the physical surroundings and geographical conditions of the place the child lives in, as well as his social environment and relationships with family and peers. It is easy to understand that a well-nurtured child does better than a deprived one; the environment children are constantly immersed in contributes to this. A good school and a loving family build in children strong social and interpersonal skills, which will enable them to excel in other areas such as academics and extracurricular activities. This will, of course, be different for children who are raised in stressful environments.

3. SEX

The sex of the child is another major factor affecting the physical growth and development of a child. Boys and girls grow in different ways, especially nearing puberty. Boys tend to be taller and physically stronger than girls. However, girls tend to mature faster during adolescence, while boys mature over a longer period of time. The physical structure of their bodies also has differences which make boys more athletic and suited for activities that require physical rigour. Their temperaments also vary, making them show interest in different things.

4. EXERCISE AND HEALTH

The word exercise here does not mean physical exercise as a discipline or children deliberately engaging in physical activities knowing it would help them grow. Exercise here refers to the normal playtime and sports activities which help the body gain an increase in muscular strength and put on bone mass.

Proper exercise helps children grow well and reach milestones on time or sooner. Exercise also keeps them healthy and fights off diseases by strengthening the immune system, especially if they play outside. This is because outdoor play exposes them to microbes that help them build resistance and prevent allergies.

5. HORMONES

Hormones belong to the endocrine system and influence the various functions of our bodies. They are produced by different glands that are situated in specific parts of the body to secrete hormones that control body functions. Their timely functioning is critical for normal physical growth and development in children. Imbalances in the functioning of hormone-secreting glands can result in growth defects, obesity, behavioural problems and other diseases. During puberty, the gonads produce sex hormones which control the development of the sex organs and the appearance of secondary sexual characteristics in boys and girls.

6. NUTRITION

Nutrition is a critical factor in growth as everything the body needs to build and repair itself comes from the food we eat. Malnutrition can cause deficiency diseases that adversely affect the growth and development of children. On the other hand, overeating can lead to obesity and health problems in the long run, such as diabetes and heart disease. A balanced diet that is rich in vitamins, minerals, proteins, carbohydrates and fats is essential for the development of the brain and body.

7. FAMILIAL INFLUENCE

Families have the most profound impact in nurturing a child and determining the ways in which they develop psychologically and socially. Whether they are raised by their parents, grandparents or foster care, they need basic love, care and courtesy to develop as healthy functional individuals. The most positive growth is seen when families invest time, energy and love in the development of the child through activities, such as reading to them, playing with them and having deep meaningful conversations. Families that abuse or neglect children would affect their positive development. These children may end up as individuals who have poor social skills and difficulty bonding with other people as adults. Helicopter parenting also has negative effects as they render children dependent on the parents even as young adults and unable to deal with difficulties in life on their own.

8. GEOGRAPHICAL INFLUENCES

Where you live also has a great influence on how your children turn out to be. The schools they attend, the neighbourhood they live in, the opportunities offered by the community and their peer circles are some of the social factors affecting a child's development. Living in an enriching community that has parks, libraries and community centres for group activities and sports all play a role in developing the child's skills, talents, and behaviour. Uninteresting communities can push some children to not go outside often but play videogames at home instead. Even the weather of a place influences children in the form of bodily rhythms, allergies and other health conditions.

9. SOCIO-ECONOMIC STATUS

The socio-economic status of a family determines the quality of the opportunity a child gets. Studying in better schools that are more expensive definitely has benefits in the long run. Well-off families can also offer better learning resources for their children and they afford special aid if the kids need it. Children from poorer families may not have access to educational resources and good nutrition to reach their full potential. They may also have working parents who work too many hours and cannot invest enough quality time in their development.

10. LEARNING AND REINFORCEMENT

Learning involves much more than schooling. It is also concerned with building the child up mentally, intellectually, emotionally, and socially so they operate as healthy functional individuals in the society. This is where the development of the mind takes place and the child can gain some maturity. Reinforcement is a component of learning where an activity or exercise is repeated and refined to solidify the lessons learned. An example is playing a musical instrument; they get better at playing it as they practice playing the instrument. Therefore, any lesson that is taught has to be repeated until the right results are obtained.

STAGES OF DEVELOPMENT

What aspects of ourselves change and develop as we journey through life? We move through significant physical, cognitive, and psychosocial changes throughout our lives—do these changes happen in a systematic way, and to everyone? How much is due to genetics and how much is due to environmental influences and experiences (both within our personal control and beyond)? Is there just one course of development or are there many different courses of development? In this module, we'll examine these questions and learn about the major stages of development and what kind of developmental tasks and transitions we might expect along the way.

DEFINING HUMAN DEVELOPMENT IN STAGES

Human development refers to the physical, cognitive, and psychosocial development of humans throughout the lifespan. What types of development are involved in each of these three domains, or areas, of life? Physical development involves growth and changes in the body and brain, the senses, motor skills, and health and wellness. Cognitive development involves learning, attention, memory, language, thinking, reasoning, and creativity. Psychosocial development involves emotions, personality, and social relationships.

PHYSICAL DOMAIN

Many of us are familiar with the height and weight charts that pediatricians consult to estimate if babies, children, and teens are growing within normative ranges of physical development. We may also be aware of changes in children's fine and gross motor skills, as well as their increasing coordination, particularly in terms of playing sports. But we may not realize that physical development also involves brain development, which not only enables childhood motor coordination but also

greater coordination between emotions and planning in adulthood, as our brains are not done developing in infancy or childhood. Physical development also includes puberty, sexual health, fertility, menopause, changes in our senses, and primary versus secondary aging. Healthy habits with nutrition and exercise are also important at every age and stage across the lifespan.

COGNITIVE DOMAIN

If we watch and listen to infants and toddlers, we can't help but wonder how they learn so much so fast, particularly when it comes to language development. Then as we compare young children to those in middle childhood, there appear to be huge differences in their ability to think logically about the concrete world around them. Cognitive development includes mental processes, thinking, learning, and understanding, and it doesn't stop in childhood. Adolescents develop the ability to think logically about the abstract world (and may like to debate matters with adults as they exercise their new cognitive skills!). Moral reasoning develops further, as does practical intelligence—wisdom may develop with experience over time. Memory abilities and different forms of intelligence tend to change with age. Brain development and the brain's ability to change and compensate for losses is significant to cognitive functions across the lifespan, too.

PSYCHOSOCIAL DOMAIN

Development in this domain involves what's going on both psychologically and socially. Early on, the focus is on infants and caregivers, as temperament and attachment are significant. As the social world expands and the child grows psychologically, different types of play and interactions with other children and teachers become important. Psychosocial development involves emotions, personality, self-esteem, and relationships. Peers become more important for adolescents, who are exploring new roles and forming their own identities. Dating, romance, cohabitation, marriage, having children, and finding work or a career are all parts of the transition into adulthood. Psychosocial development continues across adulthood with similar (and some different) developmental issues of family, friends, parenting, romance, divorce, remarriage, blended families, caregiving for elders, becoming grandparents and great grandparents, retirement, new careers, coping with losses, and death and dying.

As you may have already noticed, physical, cognitive, and psychosocial development are often interrelated, as with the example of brain development. We will be examining human development in these three domains in detail throughout the modules in this course, as we learn about infancy/toddlerhood, early childhood, middle childhood, adolescence, young adulthood, middle adulthood, and late adulthood development, as well as death and dying.

KEY ISSUES IN HUMAN DEVELOPMENT

There are many different theoretical approaches regarding human development. As we evaluate them in this course, recall that human development focuses on how people change, and the approaches address the nature of change in different ways:

- Is the change smooth or uneven (continuous versus discontinuous)?
- Is this pattern of change the same for everyone, or are there different patterns of change (one course of development versus many courses)?
- How do genetics and environment interact to influence development (nature versus nurture)?

IS DEVELOPMENT CONTINUOUS OR DISCONTINUOUS?

Continuous development views development as a cumulative process, gradually improving on existing skills (Figure 2). With this type of development, there is a gradual change. Consider, for

example, a child's physical growth: adding inches to their height year by year. In contrast, theorists who view development as **discontinuous** believe that development takes place in unique stages and that it occurs at specific times or ages. With this type of development, the change is more sudden, such as an infant's ability to demonstrate awareness of object permanence (which is a cognitive skill that develops toward the end of infancy, according to Piaget's cognitive theory—more on that theory in the next module). Stage theories hold that the sequence of development is universal. For example, in cross-cultural studies of language development, children from around the world reach language milestones in a similar sequence (Gleitman & Newport, 1995). Infants in all cultures coo before they babble. They begin babbling at about the same age and utter their first word around 12 months old. Yet we live in diverse contexts that have a unique effect on each of us. For example, researchers once believed that motor development followed one course for all children regardless of culture. However, childcare practices vary by culture, and different practices have been found to accelerate or inhibit the achievement of developmental milestones such as sitting, crawling, and walking (Karasik, Adolph, Tamis-LeMonda, & Bornstein, 2010).

For instance, let's look at the Aché society in Paraguay. They spend a significant amount of time foraging in forests. While foraging, Aché mothers carry their young children, rarely putting them down in order to protect them from getting hurt in the forest. Consequently, their children walk much later: They walk around 23–25 months old, in comparison to infants in Western cultures who begin to walk around 12 months old. However, as Aché children become older, they are allowed more freedom to move about, and by about age 9, their motor skills surpass those of U.S. children of the same age: Aché children are able to climb trees up to 25 feet tall and use machetes to chop their way through the forest (Kaplan & Dove, 1987). As you can see, our development is influenced by multiple contexts, so the timing of basic motor functions may vary across cultures. However, the functions are present in all societies.

PERIODS OF HUMAN DEVELOPMENT

Think about the lifespan and make a list of what you would consider the basic periods of development. How many periods or stages are on your list? Perhaps you have three: childhood, adulthood, and old age. Or maybe four: infancy, childhood, adolescence, and adulthood. Developmentalists often break the lifespan into eight stages:

1. Prenatal Development
2. Infancy and Toddlerhood
3. Early Childhood
4. Middle Childhood
5. Adolescence
6. Early Adulthood
7. Middle Adulthood
8. Late Adulthood

In addition, the topic of "Death and Dying" is usually addressed after late adulthood since overall, the likelihood of dying increases in later life (though individual and group variations exist). Death and dying will be the topic of our last module, though it is not necessarily a stage of development that occurs at a particular age. The list of the periods of development reflects unique aspects of the various stages of childhood and adulthood that will be explored in this book, including physical, cognitive, and psychosocial changes. So while both an 8-month-old and an 8-year-old are considered children, they have very different motor abilities, cognitive skills, and social relationships. Their

nutritional needs are different, and their primary psychological concerns are also distinctive. The same is true of an 18-year-old and an 80-year-old, both considered adults. We will discover the distinctions between being 28 or 48 as well. But first, here is a brief overview of the stages.

PRENATAL DEVELOPMENT

Conception occurs and development begins. There are three stages of prenatal development: germinal, embryonic, and fetal periods. All of the major structures of the body are forming and the health of the mother is of primary concern. There are various approaches to labor, delivery, and childbirth, with potential complications of pregnancy and delivery, as well as risks and complications with newborns, but also advances in tests, technology, and medicine. The influences of nature (e.g., genetics) and nurture (e.g., nutrition and teratogens, which are environmental factors during pregnancy that can lead to birth defects) are evident. Evolutionary psychology, along with studies of twins and adoptions, help us understand the interplay of factors and the relative influences of nature and nurture on human development.

INFANCY AND TODDLERHOOD

The first year and a half to two years of life are ones of dramatic growth and change. A newborn, with many involuntary reflexes and a keen sense of hearing but poor vision, is transformed into a walking, talking toddler within a relatively short period of time. Caregivers similarly transform their roles from those who manage feeding and sleep schedules to constantly moving guides and safety inspectors for mobile, energetic children. Brain development happens at a remarkable rate, as does physical growth and language development. Infants have their own temperaments and approaches to play. Interactions with primary caregivers (and others) undergo changes influenced by possible separation anxiety and the development of attachment styles. Social and cultural issues center around breastfeeding or formula-feeding, sleeping in cribs or in the bed with parents, toilet training, and whether or not to get vaccinations.

EARLY CHILDHOOD

Early childhood is also referred to as the preschool years, consisting of the years that follow toddlerhood and precede formal schooling, roughly from around ages 2 to 5 or 6. As a preschooler, the child is busy learning language (with amazing growth in vocabulary), is gaining a sense of self and greater independence, and is beginning to learn the workings of the physical world. This knowledge does not come quickly, however, and preschoolers may initially have interesting conceptions of size, time, space and distance, such as demonstrating how long something will take by holding out their two index fingers several inches apart. A toddler's fierce determination to do something may give way to a four-year-old's sense of guilt for doing something that brings the disapproval of others.

MIDDLE CHILDHOOD

The ages of 6-11 comprise middle childhood and much of what children experience at this age is connected to their involvement in the early grades of school. Now the world becomes one of learning and testing new academic skills and assessing one's abilities and accomplishments by making comparisons between self and others. Schools participate in this process by comparing students and making these comparisons public through team sports, test scores, and other forms of recognition. The brain reaches its adult size around age seven, but it continues to develop. Growth rates slow down and children are able to refine their motor skills at this point in life. Children also begin to learn about social relationships beyond the family through interaction with friends and fellow students; same-sex friendships are particularly salient during this period.

The theory of psychosocial development created by Erik Erikson is one of the best-known personality theories. The theory differs from many others in that it addresses development across the entire lifespan, from birth through death. At each stage, the individual deals with a conflict that serves as a turning point in development. When the conflict is resolved successfully, the person is able to develop the psychosocial quality associated with that particular stage of development. Learn about each psychosocial stage, including the conflict confronted and the major events that occur during each point of development.

STAGE 1: TRUST VERSUS MISTRUST

Trust versus mistrust is the earliest psychosocial stage that occurs during the first year or so of a child's life. During this critical phase of development, an infant is utterly dependent upon his or her caregivers. When parents or caregivers respond to a child's needs in a consistent and caring manner, the child then learns to trust the world and the people around him.

STAGE 2: AUTONOMY VERSUS SHAME AND DOUBT

The second psychosocial stage involves the conflict between autonomy and shame or doubt. As the child enters the toddler years, gaining a greater sense of personal control becomes increasingly important. Tasks such as learning how to use the toilet, selecting foods and choosing toys are ways that children gain a greater sense of independence.

STAGE 3: INITIATIVE VERSUS GUILT

The third psychosocial stage is known as initiative versus guilt and occurs between the ages of about three and five. This stage is centered on developing a sense of self-initiative. Children who are allowed and encouraged to engage in self-directed play emerge with a sense of strong initiative, while those who are discouraged may begin to feel a sense of guilt over their self-initiated activities.

STAGE 4: INDUSTRY VERSUS INFERIORITY

During middle childhood between the ages of about six and eleven, children enter the psychosocial stage known as industry versus inferiority. As children engage in social interaction with friends and academic activities at school, they begin to develop a sense of pride and accomplishment in their work and abilities. Children who are praised and encouraged to develop a sense of competence. Those who are discouraged are left with a sense of inferiority.

STAGE 5: IDENTITY VERSUS CONFUSION

In the fifth psychosocial stage is centered on identity versus role confusion. At this point in development, the formation of a personal identity becomes critical. During adolescence, teens explore different behaviors, roles, and identities. Erikson believed that this stage was particularly crucial and that forging a strong identity serves as a basis for finding future direction in life. Those who find a sense of identity feel secure, independent and ready to face the future, while those who remain confused may feel lost, insecure and unsure of their place in the world.

SUCCESSFUL AGING

One of the major achievements of medical science over the last few centuries is an extension of life expectancy. Historically, almost all religions practices have valued long life. Some of the religions emphasize disengagement/detachment in the old age as frailty becomes inevitable. However, till recent times, researchers did not discuss much about how best to live long life. Over the years, there is an emphasis on not just having for long only but also having disease-free long life. Fortunately, the life expectancy has also increased in India. Compared to life expectancy of 32 years at the time

of independence, it was estimated to be 65 years for the year 2011. Those aged >60 years formed 5.5% of the total population in 1951, which increased to 8.5% in 2011 and it is projected that by 2050, elderly will form 19% of the total population, with higher growth for those aged ≥80 years. However, should we be happy with increase in life expectancy and proportion of elderly only or should we focus on aging healthily. Unfortunately, there is no focus on healthy aging in India. In this editorial, an attempt is made to understand the concept of successful aging and in the end an attempt is made to understand the relevance to India.

In the Western world, before 1980s, much of the discussion in relation to aging was on distinction between the pathological and nonpathological aging with focus on having or not having diseases or disabilities. The basic understanding was that those who were free from disease and disability, other age-related physical functions, and cognitive functions were normal, which was primarily determined by the genetic factors.

However, this concept was challenged, and one of the major concepts which have emerged over the last three decades or so is successful aging. In a landmark article, Rowe and Kahn introduced the term successful aging and distinguished usual aging from "successful aging." They considered successful aging to include three main components, i.e., having low probability of disease and associated disability, high cognitive and physical functioning, and active engagement with life.

They further emphasized that successful aging does not merely involve the absence of disease or maintenance of functional capabilities, but requires combination of both along with active engagement with life. Thus, although maintenance of functional capacities and low risk for disease are very important, their combination with active engagement is considered central for defining successful aging. On the basis of this definition, research started in this area, and many authors evaluated the model of Rowe and Kahn and it was soon realized that very few older people fulfilled all the three components of successful aging. Further, some of the researchers criticized the concept that the model of Rowe and Kahn and suggested that the model downplayed the importance of genetics and species-determined deterioration of late life, did not lay emphasis on spirituality and subjective well-being.

Further, it was suggested that from a life-span developmental perspective, successful aging model failed to address losses, gains, and balance in later life. Over the years, many researchers developed their own model for and described different components of successful aging. In fact, the concept was also referred differently, i.e. the various synonymous terms used include positive aging, active aging, aging well, healthy aging, optimum aging, productive aging, vital aging, and robust aging. In recent decades, the most popular term in the United States has been successful aging and that in Europe has been active aging.

There is no universally accepted definition of successful aging. In fact, in a review of quantitative studies on successful aging in 2006, it was reported that there were at least 29 different definitions of the concept and most of these definitions focused on physical health. The various components considered by these definitions include disability/physical functioning (26 definitions), cognitive functioning (13 definitions), life satisfaction/well-being (9 definitions), social/productive engagement (8 definitions), presence of illness (6 definitions), longevity (4 definitions), self-rated health (3 definitions), personality (2 definitions), environment/finances (2 definitions), and self-rated successful aging (2 definitions). Based on the definition, the prevalence of successful agers in different studies ranged from 0.4% to 95%.

In a systematic review of lay perspectives of successful ageing, three components, i.e., biomedical (physical functioning/disability, cognitive functioning/disability, affective status, presence/probability of disease, mental health, and longevity), psychosocial (personal resources, engagement, life satisfaction/well-being, support system, and independence/autonomy), and extrinsic factors (environment, finances-income, and financial security) were identified. The authors reported that from lay perspective psychosocial components, notably engagement (e.g., social engagement), and personal resources (e.g., attitude) are the important components of successful aging, more often than "physiological" components, such as longevity or physical functioning.

THEORIES OF DEVELOPMENT: PSYCHOANALYTICAL

When child development experts talk about the study of development, they have in mind some fundamental theories of development that were codified by brilliant clinicians and scientists well before we had the technology to correlate them to brain development. In this post, we'll pay homage to these theorists. After all, every clinician who works with kids routinely and almost reflexively thinks of these scholars. The irony is that the theories are so pervasive and useful, that often the beginnings of these theories are lost in the story. Understanding how these theories came into being can therefore help to direct therapists and parents when they're deciding how best to understand their children.

Roughly speaking, these theories can be categorized as emotional, cognitive and moral. Erik Erikson developed the most common theories of emotional development. Jean Piaget developed the most common theories of cognitive development. And, Lawrence Kohlberg developed the dominant theories of moral development. Let's look at Erikson first. Erikson saw the world as a series of age-matched developmental crises, and he conceptualized these crises as binary and competing values. He didn't think of the crises as bad things; rather, each crisis represented an opportunity to move forward.

Infancy, for example, is characterized by Trust (a positive value) versus Mistrust (a negative value). Adolescence is a battle between Identity Formation (good) versus Role Diffusion (bad). According to Erickson, if these binary crises are not successfully negotiated—if an infant, for instance, can't trust the adults of the world to keep him warm and fed and held—then that infant will grow up with a fundamental lack of trust, and at some point, will have to actively address this issue. These ideas actually stem directly from the psychoanalytic notions that Sigmund Freud put on the map, namely that past experience influences future feelings and behaviors. Erickson studied children and adults, and he characterized each stage of development as follows:

Hope: Trust vs. Mistrust (2 years) **Will:** Autonomy vs. Shame & Doubt (2-4 years) **Purpose:** Initiative vs. Guilt (Preschool, 4-5 years) **Competence:** Industry vs. Inferiority (5-12 years) **Fidelity:** Identity vs. Role Confusion (13-19 years) **Love:** Intimacy vs. Isolation (20-40 years) **Care:** Generativity vs. Stagnation (40-64 years) **Wisdom:** Ego Integrity vs. Despair (65-death) You can see from the bold print that Erickson associated certain personality characteristics with successful passage through these crises. He called these characteristics values. The infant who can trust, develops hope; the young adult who can be intimate, develops the capacity to love. In this sense, Erickson created a mechanism by which different individuals can be developmentally assessed. The adult who feels ashamed is automatically thrown back to the age where she first experienced shame; as shame occurs at around age 2 to 4, Erickson would argue that the ashamed adult will more likely act like a toddler. And, an adult behaving like a toddler gets into more trouble. This helps to

provide a roadmap for the clinician.

This way of looking at development has its critics. Many have argued that Erickson's theories are primarily Western, and as the world becomes more multi-cultural, one must be wary of the generalizations that Erickson's work might engender. Not all cultures, for example, view adolescence as a time for identity formation. Gil Noam, an internationally-known developmental psychologist at Harvard, has noted as well that Erickson seemed to skip an important stage between the values of **competence** and **fidelity**. Noam notes that young adolescents, or middle school kids, are less concerned with who they are as individuals, and more with what group defines them—hence, the emphasis on popularity in middle school. Noam calls this the "Psychology of Belonging," and he has shown through numerous studies that young teens can be helped most by being made to feel that they belong.

Jean Piaget is the next theorist we'll discuss. Piaget was more interested in how kids change the way they think about the world; that's why he is considered the father of cognitive development. Piaget watched how kids figure things out. He noticed that when kids are teeny, they do lots of touching and tasting. From this, he decided that very young kids learn about their new world by doing simple experiments. What does that cat feel like? How does the side of the table taste? After that, he felt that children moved onto a more binary view of the world. He noticed that school-aged kids rarely abstract; in today's world, for example, four fouls is an out every single time in first grade. He decided, therefore, that young school-aged kids are focused primarily on a black-and-white view of the world.

But then he noticed that as that first grader moves through elementary school, her views of the world change; at first, four fouls is an out every single time. By second grade, four fouls is an out because those are the rules that are used to keep the game fun. By third grade, four fouls is an out, but that rule doesn't have to be; in fact, by third grade, lots of energy is used in discussing the possible variations in the rules. By sixth grade, kids start to eschew the rules altogether. To heck with the rules, they say—We make the rules.

And just like that, Piaget noticed that with the onset of adolescence emerged the capacity to abstract. Think of the shift, in just six years, from "the rules are the rules because they're the rules," to "we make the rules." Piaget categorized the way kids make sense of the world like this: **Preoperational** (ages 2-7) – Lots of gray matter, much less white matter **Concrete Operational** (ages 7-11) – White matter starts to connect in linear patterns **Formal Operations** (ages 11+) – Gray matter decreases as white matter flowers. Of course, Piaget couldn't have made the notations you read above about the changes in gray and white matter; But, it turns out the Piaget's theories correlate exactly with the neurobiology that he didn't yet have the tools to understand when he was writing in the early part of the 20th century.

All of this helped to set the stage for Lawrence Kohlberg (he came after Erickson and Piaget, but actually worked directly with Erickson). Kohlberg decided that if kids move along their development both emotionally and cognitively, then they must also move forward morally.

PSYCHOANALYTIC THEORY

Stages of Psychoanalytic Theory:

I. SIGMUND FREUD'S PSYCHOSEXUAL STAGES:

Freud believed our most basic drive is the sex drive. If you believe that biologically speaking the goal of our lives is to pass on our genes, then you might agree with Freud that the sex drive is central to everything else. He outlined five stages in child and adolescent development, which he called psychosexual stages.

At each of these stages, sexual energy is invested in a different part of the body, and gratification of the urges associated with those areas of the body is particularly pleasurable. He labelled these stages the oral, anal, phallic, latency, and genital stages. He believed that the way in which gratification of urges is handled during each of these stages determines the nature of an adult's personality and character.

Disturbances in any of the stages can result in psychological disturbance in adulthood. We will describe these stages and Freud's ideas about the effects later in life if development during these stages does not go well. The oral stage lasts from birth to about 18 months of age. The zone of pleasure is the mouth. A baby for whom taking in food is not pleasurable might not survive. If you give a 6-month-old baby a toy, what is the first thing she is likely to do? Toy makers are aware that children are likely to put anything in their mouths and warn us against giving them toys with small parts that can cause choking.

Freud developed the idea that someone can get "stuck" or fixated in one of the first three psychosexual stages of early childhood. That person will then exhibit characteristics of that stage later in life. For example, an individual who is fixated in the oral stage may want to continue to try to satisfy his oral urges by overeating or smoking.

Many of us have some remnants of this stage as we chew on our fingers or pencils; however, a fixation is really only a concern when it interferes with adaptive functioning in some critical way. The anal stage lasts from 18 months to 3 years. At this age the pleasure center moves to the anus, and issues of toilet training become central. Although many of us squirm to think of the anus as a pleasure center, we have only to listen to the "poopy talk" of young children to see the hilarity it brings about. The task of the child at this age is to learn to control his bodily urges to conform to society's expectations.

A person who is fixated at this stage may become over controlled as an adult. Everything must be in its proper place to an extreme degree. Conversely, someone might become "anal explosive," creating "messes" wherever he goes. The phallic stage lasts from 3 to 6 years of age. At this stage Freud believed that the paths followed by boys and girls diverge in ways that have been extremely controversial. We will first look at the path for boys. A boy's pleasure becomes focused on the penis. Many parents must patiently explain to their little boy that he cannot keep his hand in his pants while out in company.

Later during this stage the boy develops what Freud called the Oedipus complex, named after the character from Greek mythology that unknowingly killed his own father and married his mother. The boy focuses all his affections on his mother and becomes angry at his father, who stands in the way of the child's sole possession of her. However, in the normal course of events, the boy becomes uncomfortable with this anger at his father. Rather than experiencing the anger, he projects the feeling onto his father and fears that his father is angry at him. In this stage when he is focused on his own penis, the retribution he imagines from his father is that he will cut off the boy's penis.

Consequently, the boy develops what Freud called castration anxiety. In order to avoid this fate, the boy gives up his dream of marrying his mother and decides to become like or identify with his

father. A man who does not resolve the Oedipus complex may become fixated in this stage.

He may find rivalry or competition with other men overwhelming, as he doubts his ability to measure up to others. He may also find it difficult to have intimate relations with women, as they remind him of forbidden impulses toward his mother.

For girls, the picture is much more complicated and controversial, even for therapists who practice psychoanalysis. In the phallic stage, Freud believed that girls come to believe that they once had a penis and that it was cut off, leaving them with penis envy. Girls go through a similar complex, called the Electra complex, in which they want to marry their fathers and do away with their mothers.

Freud believed that girls must learn to identify with their mothers, whom they see as damaged in the same way that they themselves are. The only way in which they will achieve a sense of wholeness when they produce a penis by having a baby boy. Freud believed that girls must accept their passive, receptive nature and those who do not adequately resolve the Electra complex might try to overcome their feelings of inferiority by being too assertive and masculine.

The critique of Freud's view of female development has been fierce, even from the early days of the development of psychoanalytic theory. Female psychoanalysts have argued that this explanation of female development has more to do with a little boy's view of girls than the girl's view of herself.

They also have argued that boys and men are just as jealous of women's ability to give birth as girls are of a boy's penis. Feminist Gloria Steinem satirized Freud's treatment of women by proposing a

version of psychoanalytic theory developed by a fictional "Phyllis Freud," based on womb and breast envy rather than penis envy.

The latency stage occurs between 6 and 12 years of age. Latent means inactive, and Freud believed that during this time the sex drive goes underground. Children move from their fantasies in the phallic period of marrying their parent to a new realization that they must take the long road toward learning to become a grown-up.

The sex drive provides energy for the learning that must take place but is not expressed overtly. Children transfer their interest from parents to peers. At this age children who had cross-sex friendships often relinquish them as boys and girls learn the meaning of "cooties" and each sex professes disgust for the other. This separation of the sexes begins to change at age 12, when young adolescents enter the genital stage. At this point, sexual energy is focused on the genital area, and true sexual interest occurs between peers.

II. ERIK ERIKSON'S PSYCHOSOCIAL STAGES:

Many of the people who initially studied and worked with Freud have gone on to change psychoanalytic theory in significant ways. Erik Homburger Erikson is one of the most influential. Erikson focused more on issues of the ego rather than the id. Ego means "I" or "self," and Erikson's major focus was on the development of identity.

He described a series of stages based on issues that arise during the process of psychosocial development. Erikson describes psychosocial stages because these issues are rooted in social

experiences that are typical of each stage of development rather than in sexual urges. At each age he believed that there is a central conflict to be resolved and the way in which we resolve that conflict lays the groundwork for the next stages of our development. For example, Erikson believed that infants have to establish trust in the world around them, while toddlers have to struggle with developing autonomy, or a level of independence from their parents.

The other important aspect of Erikson's theory is that he believed that development does not stop in adolescence. He went beyond Freud's stages to add three stages of adulthood. He was the first theorist to acknowledge that we continue to grow and develop throughout our lives.

MODERN APPLICATIONS OF PSYCHOANALYTIC THEORY:

Although psychoanalytic theory has been controversial, ideas that come from psychoanalytic theory are still very influential, particularly in relation to the study of the development of mental and emotional disorders, a field known as developmental psychopathology. Many psychotherapists continue to use therapy that is designed to uncover inner conflicts from earlier life experiences, especially early trauma, as the basis for current psychological symptoms. A number of modern theories and therapeutic approaches also have their roots in concepts taken from psychoanalytic theory.

If you take advanced courses in psychology, you are likely to learn more about some of these approaches. Evidence from other types of research that follow the scientific method has yielded mixed results. Some ideas have been supported by research, and others have not. Erikson's ideas about the effect of social experiences on the development of personality throughout the life span have remained an important influence in the field of child development. A number of his ideas have influenced contemporary child care practices and our understanding of how development occurs as a series of interrelated experiences.

For instance, we urge new parents to be sensitive and responsive to their infants as a way to establish a sense of trust, as Erikson described. We better understand the challenge of adolescence when we see it as a struggle to establish a coherent sense of individual identity. These concepts have also been used to help in the treatment of children with emotional disturbances by providing a framework for understanding the central issues to be dealt with at different ages.

BEHAVIORIST APPROACH

Behaviorism is a theory of learning which states all behaviors are learned through interaction with the environment through a process called conditioning. Thus, behavior is simply a response to environmental stimuli. Behaviorism is only concerned with observable stimulus-response behaviors, as they can be studied in a systematic and observable manner.

The behaviorist movement began in 1913 when John Watson wrote an article entitled 'Psychology as the behaviorist views it,' which set out a number of underlying assumptions regarding methodology and behavioral analysis:

ALL BEHAVIOR IS LEARNED FROM THE ENVIRONMENT:

Behaviorism emphasizes the role of environmental factors in influencing behavior, to the near exclusion of innate or inherited factors. This amounts essentially to a focus on learning. We learn new behavior through classical or operant conditioning (collectively known as 'learning theory'). Therefore, when born our mind is 'tabula rasa' (a blank slate).

PSYCHOLOGY SHOULD BE SEEN AS A SCIENCE:

Theories need to be supported by empirical data obtained through careful and controlled

observation and measurement of behavior. Watson (1913) stated that: 'Psychology as a behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is ... prediction and control.' (p. 158). The components of a theory should be as simple as possible. Behaviorists propose the use of operational definitions (defining variables in terms of observable, measurable events). Behaviorism is primarily concerned with observable behavior, as opposed to internal events like thinking and emotion: While behaviorists often accept the existence of cognitions and emotions, they prefer not to study them as only observable (i.e., external) behavior can be objectively and scientifically measured. Therefore, internal events, such as thinking should be explained through behavioral terms (or eliminated altogether).

There is little difference between the learning that takes place in humans and that in other animals: There's no fundamental (qualitative) distinction between human and animal behavior. Therefore, research can be carried out on animals as well as humans (i.e., comparative psychology). Consequently, rats and pigeons became the primary source of data for behaviorists, as their environments could be easily controlled.

BEHAVIOR IS THE RESULT OF STIMULUS-RESPONSE:

All behavior, no matter how complex, can be reduced to a simple stimulus-response association). Watson described the purpose of psychology as: 'To predict, given the stimulus, what reaction will take place; or, given the reaction, state what the situation or stimulus is that has caused the reaction.' (1930, p. 11).

TYPES OF BEHAVIORISM

Historically, the most significant distinction between versions of behaviorism is that between Watson's original 'methodological behaviorism,' and forms of behaviorism later inspired by his work, known collectively as neobehaviorism (e.g., radical behaviorism).

METHODOLOGICAL BEHAVIORISM

Watson's article 'Psychology as the behaviorist views it' is often referred to as the 'behaviorist manifesto,' in which Watson (1913, p. 158) outlines the principles of all behaviorists: 'Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all of its refinement and complexity, forms only a part of the behaviorist's total scheme of investigation'.

RADICAL BEHAVIORISM

Radical behaviorism was founded by B.F Skinner and agreed with the assumption of methodological behaviorism that the goal of psychology should be to predict and control behavior. Skinner, like Watson, also recognized the role of internal mental events, and while he agreed such private events could not be used to explain behavior, he proposed they should be explained in the analysis of behavior. Another important distinction between methodological and radical behaviorism concerns the extent to which environmental factors influence behavior. Watson's (1913) methodological behaviorism asserts the mind is *tabula rasa* (a blank slate) at birth. In contrast, radical behaviorism accepts the view that organisms are born with innate behaviors, and thus recognizes the role of genes and biological components in behavior.

THE HISTORY OF BEHAVIORISM

- Pavlov (1897) published the results of an experiment on conditioning after originally studying digestion in dogs.
- Watson (1913) launches the behavioral school of psychology, publishing an article, Psychology as the behaviorist views it.
- Watson and Rayner (1920) conditioned an orphan called Albert B (aka Little Albert) to fear a white rat.
- Thorndike (1905) formalized the Law of Effect.
- Skinner (1936) wrote The Behavior of Organisms and introduced the concepts of operant conditioning and shaping.
- Clark Hull's (1943) Principles of Behavior was published.
- B.F. Skinner (1948) published Walden Two, in which he described a utopian society founded upon behaviorist principles.
- Journal of the Experimental Analysis of Behavior begun in 1958.
- Chomsky (1959) published his criticism of Skinner's behaviorism, "Review of Verbal Behavior."
- Bandura (1963) publishes a book called the Social Learning Theory and Personality development which combines both cognitive and behavioral frameworks.
- B.F. Skinner (1971) published his book, Beyond Freedom and Dignity, where he argues that free will is an illusion.

COGNITIVE DEVELOPMENT

Children grow and develop rapidly in their first five years across the four main areas of development. These areas are motor (physical), language and communication, cognitive and social/emotional. Cognitive development means how children think, explore and figure things out. It is the development of knowledge, skills, problem solving and dispositions, which help children to think about and understand the world around them. Brain development is part of cognitive development. As a parent, it is important to foster your child's cognitive development as soon as he/she is born because doing so provides the foundation for your child's success in school and later in life. For example, research shows that children who can distinguish sounds at six months of age are better at acquiring the skills for learning to read at four and five years of age. To promote your child's cognitive development, it is important that you actively engage in quality interactions on a daily basis. Examples include:

- Talking with your baby and naming commonly used objects.
- Letting your baby explore toys and move about.
- Singing and reading to your baby.
- Exposing your toddler to books and puzzles.
- Expanding on your child's interests in specific learning activities. For example, your toddler might show an early interest in dinosaurs, so you can take him/her on a trip to the natural history museum to learn more about the time that these creatures roamed the earth.
- Answering your child's "why" questions.

Another way that you can foster your child's cognitive development is to provide him/her with choices and prompt him/her to make thoughtful decisions. You should also allow your child to explore different ways of solving problems. While you may want to provide some gentle guidance and encouragement, allow your child some time to figure out things, like a new puzzle. This may require some patience on your part, but it will ultimately help him/her to learn.

SENSORY MOTOR ACTIVITIES

The foundation of growth, development, and learning in a child starts with sensory and motor interaction with the world. The brain is built from the bottom up and this starts with movement and sensory exploration. Sensory stimulation and feedback drive the brain, but the motor system drives sensory stimulation—you can't have one without the other. This is at the core of everything we do at Brain Balance Achievement Centers. It is crucial to improve motor skills, sensory detection, and processing before any higher learning, behavioral or academic changes can truly happen.

MOTOR SKILLS

In almost every case, children who have been assessed with a developmental deficit in one or more areas are the kids who struggle with learning or behavioral issues. Invariably, these kids are the ones with inadequately developed sensory and motor systems. We often see they are uncoordinated, clumsy, and awkward with their gait. Motor activities involve a number of different skills, including:

- Muscle tone, strength, and coordination
- Rhythm and timing
- Bilateral coordination
- Gross and fine-motor skills
- Primitive and postural reflexes
- Eye-muscle balance and coordination
- Vestibular balance and posture

SENSORY SKILLS

Much like underdeveloped motor skills, the same applies when there are atypical sensory deficits — smell, touch, vision, hearing, and balance. No sensory function works in isolation. All the senses are dependent on other sensory functions, which are dependent on a baseline and acceptable level of development. Engaging our senses is a powerful way to engage our brain. At BB we engage the senses:

- Smell
- Touch
- Vestibular (inner ear)
- Proprioception (the ability to know where one's body is in space)
- Balance and spatial perception

At Brain Balance Achievement Centers, we assess all of these skills with standardized and accepted testing and we quantify them by grade, age, or functional level. Our program then works to integrate sensory input and strengthen motor skills through the frequency and duration of activities.

SENSORY AND MOTOR DEVELOPMENT, AGES 1 TO 12 MONTHS

Sensory and motor development is the gradual process by which a child gains use and coordination of the large muscles of the legs, trunk, and arms, and the smaller muscles of the hands. A baby begins to experience new awareness through sight, touch, taste, smell, and hearing. Babies' sensory and motor development generally follows a typical pattern:

- At 1 month of age, babies' neck muscles are not developed enough to support their heads for prolonged periods of time. Babies can lift their heads only briefly when lying on their stomachs. Limb movements are influenced by newborn reflexes, such as the startle reflex, which makes a

baby throw out his or her arms and spread the fingers in response to a loud noise or other sudden, unexpected stimulus. By 6 weeks of age, newborn reflexes begin to fade and the baby's strength and coordination improve.

- By age 3 months, your baby can control his or her head movements. Put your baby on his or her tummy during awake periods and closely supervise. Allowing your baby to exercise and move in this position helps develop head and neck muscles. Around 4 months of age, babies gain control and balance in their head, neck, and trunk. Most babies can balance their heads for short periods when in a stable position. Around this same age, your baby starts playing with his or her hands and grasps your finger on purpose, rather than as a reflex.
- Between 4 and 6 months of age, babies' balance and movement dramatically improve as they gain use and coordination of large muscles. During this time, babies purposefully roll over and may be able to sit with their hands balancing them in front (tripod position). Reaching toward an object with both hands, babies may grasp at toys with their palms.
- Babies gain more control of their muscles between 6 and 9 months of age as the nervous system connections continue to form. By the 7th month, babies can see almost as well as an adult. Babies develop leg and trunk coordination, sit alone steadily, and may crawl using both their hands and feet. Some babies even pull themselves up to a standing position, although the timing and sequence of these milestones vary widely.
- Between 9 months and 12 months of age, babies explore the world with all their senses. At the same time, they are developing more control over their hands and fingers and may be able to grab small objects with a forefinger and thumb. Most babies this age like to experience and explore objects through taste and texture, which prompts them to put almost anything they can into their mouths. The brain continues to grow, helping to refine control over the large muscles. By now, your baby will probably be able to crawl and stand. In these few months before babies begin to walk, they often spend hours "cruising" around the room holding on to furniture and other objects. Cruising develops muscles and coordination and gives your baby a chance to practice walking.
- Many toddlers start to walk around 9 to 15 months of age. Those first steps are possible because of changes that have taken place in the brain and the spinal cord.

LANGUAGE DEVELOPMENT

Language, be it spoken, signed, or written, has specific components: a lexicon and grammar. **Lexicon** refers to the words of a given language. Thus, lexicon is a language's vocabulary. **Grammar** refers to the set of rules that are used to convey meaning through the use of the lexicon (Fernández & Cairns, 2011). For instance, English grammar dictates that most verbs receive an "-ed" at the end to indicate past tense. Language development is the process by which children come to understand and communicate language during early childhood.

DESCRIPTION

From birth up to the age of five, children develop language at a very rapid pace. The stages of language development are universal among humans. However, the age and the pace at which a child reaches each milestone of language development vary greatly among children. Thus, language development in an individual child must be compared with norms rather than with other individual children. In general girls develop language at a faster rate than boys. More than any other aspect of development, language development reflects the growth and maturation of the brain. After the age of five it becomes much more difficult for most children to learn language.

Receptive language development (the ability to comprehend language) usually develops faster than expressive language (the ability to communicate). Two different styles of language development are

recognized. In referential language development, children first speak single words and then join words together, first into two-word sentences and then into three-word sentences. In expressive language development, children first speak in long unintelligible babbles that mimic the cadence and rhythm of adult speech. Most children use a combination these styles.

INFANCY

Language development begins before birth. Towards the end of pregnancy, a fetus begins to hear sounds and speech coming from outside the mother's body. Infants are acutely attuned to the human voice and prefer it to other sounds. In particular they prefer the higher pitch characteristic of female voices. They also are very attentive to the human face, especially when the face is talking. Although crying is a child's primary means of communication at birth, language immediately begins to develop via repetition and imitation.

BETWEEN BIRTH AND THREE MONTHS OF AGE, MOST INFANTS ACQUIRE THE FOLLOWING ABILITIES:

- seem to recognize their mother's voice
- quiet down or smile when spoken to
- turn toward familiar voices and sounds
- make sounds indicating pleasure
- cry differently to express different needs
- grunt, chuckle, whimper, and gurgle
- begin to coo (repeating the same sounds frequently) in response to voices
- make vowel-like sounds such as "ooh" and "ah"

BETWEEN THREE AND SIX MONTHS, MOST INFANTS CAN DO THE FOLLOWING:

- turn their head toward a speaker
 - watch a speaker's mouth movements
 - respond to changes in a tone of voice
 - make louder sounds including screeches
 - vocalize excitement, pleasure, and displeasure
 - cry differently out of **pain** or hunger
 - laugh, squeal, and sigh
 - sputter loudly and blow bubbles
 - shape their mouths to change sounds
 - vocalize different sounds for different needs
 - communicate desires with gestures
 - babble for attention
 - mimic sounds, inflections, and gestures
 - make many new sounds, including "p," "b," and "m," that may sound almost speech-like
- The sounds and babblings of this stage of language development are identical in babies throughout the world, even among those who are profoundly deaf. Thus all babies are born with the capacity to learn any language. Social interaction determines which language they eventually learn. Six to 12 months is a crucial age for receptive language development. Between six and nine months babies begin to do the following:

- search for sources of sound
- listen intently to speech and other sounds

- take an active interest in conversation even if it is not directed at them
- recognize "dada," "mama," "bye-bye"
- consistently respond to their names
- respond appropriately to friendly and angry tones
- express their moods by sound and body language
- **play** with sounds
- make long, more varied sounds
- babble random combinations of consonants and vowels
- babble in singsong with as many as 12 different sounds
- experiment with pitch, intonation, and volume
- use their tongues to change sounds
- repeat syllables
- imitate intonation and speech sounds

BETWEEN NINE AND 12 MONTHS BABIES MAY BEGIN TO DO THE FOLLOWING:

- listen when spoken to
- recognize words for common objects and names of **family** members
- respond to simple requests
- understand "no"
- understand gestures
- associate voices and names with people
- know their own names
- babble both short and long groups of sounds and two-to-three-syllable repeated sounds (The babble begins to have characteristic sounds of their native language.)
- use sounds other than crying to get attention
- use "mama" and "dada" for any person
- shout and scream
- repeat sounds
- use most consonant and vowel sounds
- practice inflections
- engage in much vocal play

TODDLERHOOD

During the second year of life language development proceeds at very different rates in different children. By the age of 12 months, most children use "mama/dada" appropriately. They add new words each month and temporarily lose words. Between 12 and 15 months children begin to do the following:

- recognize names
- understand and follow one-step directions
- laugh appropriately
- use four to six intelligible words, usually those starting with "b," "c," "d," and "g," although less than 20 percent of their language is comprehensible to outsiders
- use partial words
- gesture and speak "no"
- ask for help with gestures and sounds

AT 15 TO 18 MONTHS OF AGE CHILDREN USUALLY DO THE FOLLOWING:

- understand "up," "down," "hot," "off"
- use 10 to 20 intelligible words, mostly nouns
- use complete words
- put two short words together to form sentences
- chatter and imitate, use some echolalia (repetitions of words and phrases)
- have 20 to 25 percent of their speech understood by outsiders

At 18 to 24 months of age toddlers come to understand that there are words for everything and their language development gains momentum. About 50 of a child's first words are universal: names of foods, animals, family members, **toys** vehicles, and clothing. Usually children first learn general nouns, such as "flower" instead of "dandelion," and they may overgeneralize words, such as calling all toys "balls." Some children learn words for social situations, greetings, and expressions of love more readily than others. At this age children usually have 20 to 50 intelligible words and can do the following:

- follow two-step directions
- point to parts of the body
- attempt multi-syllable words
- speak three-word sentences
- ask two-word questions
- enjoy challenge words such as "helicopter"
- hum and sing
- express pain verbally
- have 50 to 70 percent of their speech understood by outsiders

After several months of slower development, children often have a "word spurt" (an explosion of new words). Between the ages of two and 18 years, it is estimated that children add nine new words per day. Between two and three years of age children acquire:

- a 400-word vocabulary including names
- a word for most everything
- the use of pronouns
- three to five-word sentences
- the ability to describe what they just saw or experienced
- the use of the past tense and plurals
- names for body parts, colors, toys, people, and objects
- the ability to repeat rhymes, songs, and stories
- the ability to answer "what" questions

Children constantly produce sentences that they have not heard before, creating rather than imitating. This **creativity** is based on the general principles and rules of language that they have mastered. By the time a child is three years of age, most of a child's speech can be understood. However, like adults, children vary greatly in how much they choose to talk. Preschool

THREE TO FOUR-YEAR-OLDS USUALLY CAN DO THE FOLLOWING:

- understand most of what they hear

- converse
- have 900 to 1,000-word vocabularies, with verbs starting to predominate
- usually talk without repeating syllables or words
- use pronouns correctly
- use three to six-word sentences
- ask questions
- relate experiences and activities
- tell stories (Occasional **stuttering** and stammering is normal in preschoolers.)

LANGUAGE SKILLS USUALLY BLOSSOM BETWEEN FOUR AND FIVE YEARS OF AGE. CHILDREN OF THIS AGE CAN DO THE FOLLOWING:

- verbalize extensively
- communicate easily with other children and adults
- articulate most English sounds correctly
- know 1,500 to 2,500 words
- use detailed six to eight-word sentences
- can repeat four-syllable words
- use at least four prepositions
- tell stories that stay on topic
- can answer questions about stories

SCHOOL AGE

At age five most children can do the following:

- follow three consecutive commands
- talk constantly
- ask innumerable questions
- use descriptive words and compound and complex sentences
- know all the vowels and consonants
- use generally correct grammar

Six-year-olds usually can correct their own grammar and mispronunciations. Most children double their vocabularies between six and eight years of age and begin reading at about age seven. A major leap in reading comprehension occurs at about nine. Ten-year-olds begin to understand figurative word meanings. Adolescents generally speak in an adult manner, gaining language maturity throughout high school.

COMMON PROBLEMS

Language delay is the most common **developmental delay** in children. There are many causes for language delay, both environmental and physical. About 60 percent of language delays in children under age three resolve spontaneously. Early intervention often helps other children to catch up to their age group.

Common circumstances that can result in language delay include:

- concentration on developing skills other than language
- siblings who are very close in age or older siblings who interpret for the younger child
- inadequate language stimulation and one-on-one attention

- bilingualism, in which a child's combined comprehension of two languages usually is equivalent to other children's comprehension of one language
- psychosocial deprivation

LANGUAGE DELAY CAN RESULT FROM A VARIETY OF PHYSICAL DISORDERS, INCLUDING THE FOLLOWING:

- mental retardation
- maturation delay (the slower-than-usual development of the speech centers of the brain), a common cause of late talking
- a hearing impairment
- a learning disability
- cerebral palsy
- autism (a developmental disorder in which, among other things, children do not use language or use it abnormally)
- congenital blindness, even in the absence of other neurological impairment
- Klinefelter syndrome, a disorder in which males are born with an extra X chromosome

BRAIN DAMAGE OR DISORDERS OF THE CENTRAL NERVOUS SYSTEM CAN CAUSE THE FOLLOWING:

- receptive aphasia or receptive language disorder, a deficit in spoken language comprehension or in the ability to respond to spoken language
- expressive aphasia, an inability to speak or write despite normal language comprehension
- childhood apraxia of speech, in which a sound is substituted for the desired syllable or word

PARENTAL CONCERNS

Language development is enriched by verbal interactions with other children and adults. Parents and care-givers can have a significant impact on early language development. Studies have shown that children of talkative parents have twice the vocabulary as those of quiet parents. A study from the National Institute of Child Health and Human Development (NICHD) found that children in high-quality childcare environments have larger vocabularies and more complex language skills than children in lower-quality situations. In addition language-based interactions appear to increase a child's capacity to learn. Recommendations for encouraging language development in infants include:

- talking to them as much as possible and giving them opportunities to respond, perhaps with a smile; short periods of silence help teach the give-and-take of conversation
- talking to infants in a singsong, high-pitched speech, called "parentese" or "motherese" (This is a universal method for enhancing language development.)
- using one- or two-syllable words and two to three-word sentences
- using proper words rather than baby words
- speaking slowly, drawing-out vowels, and exaggerating main syllables
- avoiding pronouns and articles
- using animated gestures along with words
- addressing the baby by name
- talking about on-going activities
- asking questions
- singing songs

- commenting on sounds in the environment
- encouraging the baby to make vowel-like and consonant-vowel sounds such as "ma," "da," and "ba"
- repeating recognizable syllables and repeating words that contain the syllable

When babies reach six to 12 months-of-age, parents should play word games with them, label objects with words, and allow the baby to listen and participate in conversations. Parents of toddlers should do the following:

- talk to the child in simple sentences and ask questions
 - expand on the toddler's single words
 - use gestures that reinforce words
 - put words to the child's gestures
 - name colors
 - count items
 - gently repeat correctly any words that the child has mispronounced, rather than criticizing the child
- Parents of two to three-year-olds should do the following:
- talk about what the child and parent are doing each day
 - encourage the child to use new words
 - repeat and expand on what the child says
 - ask the child yes-or-no questions and questions that require a simple choice

(TABLE BY GGS INFORMATION SERVICES.)

Language development	Activity
Age	Activity
Two months	Cries, coos, and grunts.
Four months	Begins babbling. Makes most vowel sounds and about half of consonant sounds.
Six months	Vocalizes with intonation. Responds to own name.
Eight months	Combines syllables when babbling, such "Ba-ba."
Eleven months	Says one word (or fragment of a word) with meaning.
Twelve months	Says two or three words with meaning. Practices inflection, such as raising pitch of voice at the end of a question.
Eighteen months	Has a vocabulary between five and 20 words, mostly nouns. Repeats word or phrase over and over. May start to join two words together.
Two years	Has a vocabulary of 150–300 words. Uses I, me, and you. Uses at least two prepositions (in, on, under). Combines words in short sentences. About two-thirds of what is spoken is understandable.
Three years	Has a vocabulary of 900–1000 words. Uses more

	verbs, some past tenses, and some plural nouns.
	Easily handles three- word sentences. Can give own name, sex, and age. About 90% of speech is understandable.
Four years	Can use at least four prepositions. Can usually repeat words of four syllables. Knows some colors and numbers. Has most vowels and diphthongs and consonants p, b, m, w, and n established. Talks a lot and repeats often.
Five years	Can count to ten. Speech is completely understandable, although articulation might not be perfect. Should have all vowels and consonants m, p, b, h, w, k, g, t, d, n, ng, y. Can repeat sentences as long as nine words. Speech is mostly grammatically correct.
Six years	Should have all vowels and consonants listed above, has added, f, v, sh, zh, th, l. Should be able to tell a connected story about a picture.
Seven years	Should have consonants -z, r, voiceless th, ch, wh, and soft g. Should be able to do simple reading and print many words.
Eight years	All speech sounds established. Carries on conversation at a more adult level. Can tell complicated stories of past events. Easily uses complex and compound sentences. Reads simple stories with ease and can write simple compositions.
SOURCE : Child Development Institute. 2004. http://www.childdevelopmentinfo.com .	

- encourage the child to ask questions
- read books about familiar things, with pictures, rhymes, repetitive lines, and few words
- read favorite books repeatedly, allowing the child to join in with familiar words
- encourage the child to pretend to read
- not interrupt children when they are speaking

PARENTS OF FOUR TO SIX-YEAR-OLDS SHOULD:

- not speak until the child is fully attentive
- pause after speaking to give the child a chance to respond
- acknowledge, encourage, and praise speech
- introduce new words
- talk about spatial relationships and opposites
- introduce limericks, songs, and poems
- talk about the television programs that they watch
- encourage the child to give directions
- give their full attention when the child initiates a conversation

Parents of six to 12-year-olds should talk to the children, not at them, encourage conversation by asking questions that require more than a yes-or-no answer, and listen attentively as the child recounts the day's activities. Additional recommendations for parents and care-givers, by the American Academy of Pediatrics and others, include:

- talking at eye level with a child and supplementing words with body language, gestures, and facial expressions to enhance language comprehension
- talking in ways that catch a child's attention
- using language to comfort a child
- using correct pronunciations
- using expressive language to discuss objects, actions, and emotions
- playing with sounds and words
- labeling objects and actions with words
- providing objects and experiences to talk about
- choosing activities that promote language
- listening carefully to children and responding in ways that let them know that they have been understood, as well as encouraging further communication
- using complete sentences and adding detail to expand on what a child has said
- knowing when to remain silent
- reading to a child by six months of age at the latest
- encouraging children to ask questions and seek new information
- encouraging children to listen to and ask questions of each other

TELEVISION VIEWING DOES NOT PROMOTE LANGUAGE DEVELOPMENT. WHEN TO CALL THE DOCTOR

Parents should call the pediatrician immediately if they suspect that their child may have a language delay or a hearing problem. Warning signs of language delay in toddlers include:

- avoiding eye contact
- neither understanding nor speaking words by 18 months of age
- difficulty learning nursery rhymes or simple songs
- not recognizing or labeling common objects
- inability to pay attention to a book or movie
- poor articulation, such that a parent cannot understand the child more than 50 percent of the time

KEY TERMS

Apraxia —Impairment of the ability to make purposeful movements, but not paralysis or loss of sensation.

Expressive aphasia —A developmental disorder in which a child has lower-than-normal proficiency in vocabulary, production of complex sentences, and word recall, although language comprehension is normal.

Expressive language —Communicating with language.

Expressive language development —A style of language development in which a child's babble mimics the cadence and rhythm of adult speech.

Receptive aphasia —A developmental disorder in which a child has difficulty comprehending spoken and written language.

Receptive language —The comprehension of language.

Referential language development —A style of language development in which a child first speaks single words and then joins words together into two- and three-word sentences.

EMOTIONAL DEVELOPMENT

Emotional development, emergence of the experience, expression, understanding, and regulation of emotions from birth and the growth and change in these capacities throughout childhood, adolescence, and adulthood. The development of emotions occurs in conjunction with neural, cognitive, and behavioral development and emerges within a particular social and cultural context.

INFANCY

The expression of emotions during infancy promotes the transition from complete dependency to autonomy. The expression of interest promotes exploration and cognitive development. Social (intentional) smiles and other expressions of joy promote social interaction and healthy attachment relationships with primary caregivers. The expression of sadness encourages empathy and helping behaviour, and the expression of anger signals protest and discomfort. Infants' unique tendency to experience and express particular emotions and the threshold for expressing those emotions is usually referred to as their temperament or characteristic emotionality.

Researchers generally agree that neonatal (nonintentional) smiles are present at birth and that social smiling and emotional expressions of interest appear as early as six weeks of age. By four to five months of age, infants selectively smile at familiar faces and at other infants, and their caregivers begin to share positive emotional exchanges with them. Researchers disagree in their explanations of the development and time of emergence of discrete negative emotional expressions. Consistently with the view that infants express negative emotions in early infancy, scientists have shown that infants perceive and respond differentially to the negative emotional expressions (e.g., sadness, anger) of others by the age of four months.

During the second six months of life, as infants gain rudimentary cognitive and memory capacities, they begin to express particular emotions based on context. Emotions begin to emerge dynamically as the infant begins to take a more direct role in emotional exchanges with caregivers. The emotional bond with the caregiver is increasingly important, as infants seek support for exploration and look for signals of danger.

TODDLERHOOD AND EARLY CHILDHOOD

During the toddler period, in conjunction with rapid maturation of the frontal lobes and the limbic circuit in the brain, recognition of the self emerges. As a result, the toddler strives to become more independent, and the expression of anger and defiance increases in that struggle for autonomy. The ability to differentiate the self from others also promotes basic empathetic behaviour and moral understanding. By the end of the second year of life, toddlers respond to negative signals from others, and they have specific emotional responses to their own negative actions. The emotions that emerge with a rudimentary conception of the self are often called self-conscious emotions and include shame, embarrassment, guilt, and pride. Some self-conscious emotions, such as pride and guilt, do not emerge until toddlers and young children have learned to conceptualize internalized standards of behaviour.

As children enter preschool, they begin to label their own emotions and rely on discourse about emotions within the family to facilitate their understanding of basic emotions. Young children first distinguish happiness from negative emotions and then begin to distinguish negative emotions such as sadness, anger, and fear from each other. They begin to recognize these emotions in facial expressions, and then, as they enter middle childhood, they begin to understand situational determinants of emotions. An understanding of emotional subjectivity also develops as children learn that what makes one child happy may not make another child feel the same way.

The emergence of emotional self-regulation is particularly important during early childhood and occurs in the context of family and peer relationships. Open expression of positive emotions and warm, supportive relationships between parents and children promote effective emotional self-regulation. On the other hand, frequent expression of negative emotions in the family and harsh, punitive disciplinary responses increase the experience of distressing and dysregulated emotions that may lead to psychopathology. Appropriate peer relationships characterized by shared play activities are also important for the development of emotional regulation during early childhood. Children gain emotional understanding and the capacity for empathetic and helping behaviour from well-regulated emotional exchanges with peers.

MIDDLE AND LATE CHILDHOOD

During middle and late childhood, stable self-concepts based on the child's typical emotional experiences emerge. With the increased capacity for self-reflection, children gain an understanding of their self-conscious emotions. As a result, the consistent experience of patterns of self-conscious emotions has an impact on the child's self-concept. For example, the tendency to experience shame rather than guilt in response to negative transgressions affects the child's emergent self-esteem and may encourage a tendency to respond with aggression or violence.

Also during middle and late childhood, children begin to understand that a single situation or event can lead to the experience of multiple, mixed emotions. For example, older children understand that a goodbye party for a sibling who will leave for college is likely to be both a happy and a sad event for the child and his sibling. This capacity likely emerges with the cognitive capacity to understand multiple aspects of a situation, called decentration. Children also learn emotional display rules as they progress through middle and late childhood. For example, a child learns to look happy even though she feels upset when a friend or family member gives her an undesirable gift. The use of display rules tends to increase as children begin to consider what consequences their actions may have for others. Display rules are used judiciously, and the likelihood of suppressing negative emotion depends on a number of factors, including the child's gender, the likely recipients of the expression, the specific context, and the child's cultural milieu.

ADOLESCENCE

With adolescence comes an additional struggle for autonomy and increased time spent with peers and less time spent with the family. Adolescents become less emotionally dependent on their parents, but this emotional autonomy often emerges after a period of conflict and increased experience of negative emotions. Young adolescents often experience more negative affect than younger children, but the negative affect often decreases during the high school years. However, girls often experience a longer period of elevated negative affect than boys. Adolescents tend to experience more extreme emotions, both negative and positive, than their parents even in response to the same event.

SMSC- SPIRITUAL, MORAL, SOCIAL AND CULTURAL ASPECTS OF LEARNING:

At its heart, SMSC is about relationships and attitudes. At Halton School we begin with the values projected by staff, pupils and governors, the interactions between people and the way they care for one another. This includes the quality of the physical environment, the range of opportunities provided by the school both within the curriculum and beyond it and the relationship developed by the school with the wider community.

Teachers seek to plan learning experiences that have relevance to the children, that will combine the

awe and wonder of the world with practical skills to aid them in their daily lives.

Pupils' **spiritual development** is shown by their:

- Beliefs, religious or otherwise, which inform **their perspective on life** and their **interest in and respect for different people's feeling and values**
- Sense of **enjoyment** and **fascination** in learning about **themselves, others** and the **world around them**, including the intangible
- Use of **imagination** and **creativity** in their learning
- Willingness to **reflect** on their **experiences**.

PUPILS' MORAL DEVELOPMENT IS SHOWN BY THEIR:

- Ability to **recognise** the difference between **right** and **wrong** and their readiness to **apply** this understanding **in their own lives**
- Understanding of the **consequences of their actions**
- **Interest in investigating**, and offering reasoned views about, **moral and ethical issues**

PUPILS' SOCIAL DEVELOPMENT IS SHOWN BY THEIR:

- **Use** of a range of **social skills** in **different contexts**, including **working** and **socialising** with pupils from **different backgrounds**
- **Willingness to participate** in a **variety of social settings**, **cooperating well with others** and being able to **resolve conflicts** effectively
- **Interest in**, and understanding of, the way **communities** and societies **function** at a variety of levels.

PUPILS' CULTURAL DEVELOPMENT IS SHOWN BY THEIR:

- Understanding and appreciation of the wide range of cultural influences that have shaped their own **heritage**
- **Willingness to participate** in, and **respond to** artistic, musical, sporting, mathematical, technological and scientific **opportunities**
- Interest in **exploring** and **respecting cultural diversity** and the extent to which they **understand, accept and respect diversity**, as shown by their **attitudes** towards **different religious, ethnic and socio-economic** groups in the **local, national and global communities**.

WHAT IS PSYCHOPATHOLOGY: CONCEPT, MENTAL STATUS EXAMINATION, CLASSIFICATION, CAUSES?

PSYCHOPATHOLOGY: CONCEPT, MENTAL STATUS EXAMINATION, CLASSIFICATION, CAUSES

How do we currently define psychopathology? In short, this discipline can be understood as an in-depth study of problems related to mental health. Just like pathology is the study of the nature of disease (including causes, development, and outcomes), psychopathology is the study of the same concepts within the realm of mental health (or illness). This study of mental illness can include a long list of elements: symptoms, behaviors, causes (genetics, biology, social, psychological), course, development, categorization, treatments, strategies, and more.

In this way, psychopathology is all about exploring problems related to mental health: how to understand them, how to classify them, and how to fix them. Because of this, the topic of psychopathology extends from research to treatment and covers every step in between. The better we can understand why a mental disorder develops, the easier it will be to find effective treatments.

SIGNS OF PSYCHOPATHOLOGY

Signs of psychopathology vary depending on the nature of the condition. Some of the signs that a person might be experiencing some form of psychopathology include:

- Changes in eating habits
- Changes in mood
- Excessive worry, anxiety, or fear
- Feelings of distress
- Inability to concentrate
- Irritability or anger
- Low energy or feelings of fatigue
- Sleep disruptions
- Thoughts of self-harm or suicide
- Trouble coping with daily life
- Withdrawal from activities and friends

DIAGNOSTIC SYSTEMS

Professionals engaged in research and treatment of psychopathology must use systems to arrive at conclusions regarding the best course of action for treatment. These systems are used to classify what are considered mental health disorders.

Currently, the most widely used systems for classifying mental illness in the United States are the following.²

DIAGNOSTIC AND STATISTICAL MANUAL OF MENTAL DISORDERS (DSM)

The Diagnostic and Statistical Manual of Mental Disorders (DSM) is created by the American Psychiatric Association (APA) as an assessment system for mental illness. The DSM-5 published in 2013 is the current edition and includes identifiable criteria that mental health professionals use to arrive at a specific diagnosis.³ The criteria and list of disorders sometimes change as new research emerges. Some examples of disorders listed in the DSM-5 include major depressive disorder, bipolar disorder, schizophrenia, paranoid personality disorder, and social anxiety disorder.

INTERNATIONAL CLASSIFICATION OF DISEASES (ICD)

The ICD is a system similar to the DSM. Now in its eleventh version, the ICD was developed over a century ago and was taken over by the World Health Organization (WHO) when it was founded in 1948. So, how does the ICD-11 differ from the DSM-5? First, the ICD-11 is produced by a global agency (the World Health Organization), while the DSM-5 is produced by a national professional association (the American Psychiatric Association). The ICD-11 is approved by the World Health Assembly composed of health ministers from 193 WHO member countries.

Second, the goal of the ICD-11 is to reduce the burden of disease globally. It includes medical as well as mental health diagnoses. Third, the ICD-11 is freely available on the Internet. In contrast, the DSM must be purchased, and the American Psychiatric Association derives revenue from sales of the book and related products. Beyond these standard systems for classifying mental disorders, there also exists a burgeoning area of research and theory that moves away from the checklist

format of making diagnoses. Since it's possible to have symptoms of a mental illness but not meet the criteria for an official diagnosis, studies of descriptive psychopathology hold promise for a better system of understanding.

The RDoC is a research framework initiative by the National Institute of Mental Health (NIMH) based on translational research from areas such as neuroscience, genomics, and experimental psychology. In this way, the RDoC is involved in describing the signs and symptoms of psychopathology rather than grouping them into disorders as has been historically done with the DSM and ICD. The RDoC is primarily aimed at planning and funding research.

WORKS IN PSYCHOPATHOLOGY?

Just as the scope of psychopathology is broad-ranging from research to treatment, so too is the list of types of professionals who tend to be involved in the field. At the research level, you will find research psychologists, psychiatrists, neuroscientists, and others trying to make sense of the different manifestations of mental disorders seen in clinical practice. At the clinical level, you will find many types of professionals attempting to apply the diagnostic systems that are in place to provide effective treatments to individuals living with psychopathology. These can include the following and more:

- Clinical psychologists
- Counselors
- Criminologists
- Marriage and family therapists
- Nurse practitioners
- Psychiatric nurses
- Psychiatrists
- Social workers
- Sociologists

IDENTIFYING PSYCHOPATHOLOGY

How do psychologists and psychiatrists decide what extends beyond normal behavior to enter the territory of "psychopathology?" Psychiatric disorders can be conceptualized as referring to problems in four areas: deviance, distress, dysfunction, and danger.⁴ For example, if you were experiencing symptoms of depression and went to see a psychiatrist, you would be assessed according to a list of symptoms (most likely those in the DSM-5):

- **Deviance** refers to thoughts, emotions, or behaviors that deviate from what is common or at odds with what is deemed acceptable in the society. In the case of depression, you might report thoughts of guilt or worthlessness that are not common among other people.
- **Distress** refers to negative feelings either felt within a person or that result in discomfort in others around that person. In the case of depression, you might report extreme feelings of distress over sadness or guilt.
- **Dysfunction** refers to the inability to achieve daily functions like going to work. In the case of depression, you might report that you can't get out of bed in the morning or that daily tasks take you much longer than they should.
- **Danger** refers to behavior that might put you or someone else at some type of detrimental risk. In the case of depression, this could include reporting that you are having thoughts of suicide or harming yourself.

In this way, you can see that the distinction between normal versus psychopathological behavior comes down to how issues are affecting you or the people around you. Often it is not until things come to a crisis point that a diagnosis is made when someone comes in contact with a medical or mental health professional.⁵

CAUSES

There is not a single cause for psychopathology. There are a number of factors that can increase the risk of mental illness, including:

- Biological factors, including genes and brain chemistry
- Chronic medical conditions
- Family members with mental illness
- Feelings of isolation
- Lack of social support
- Substance or alcohol use
- Traumatic or stressful experiences

It is also important to realize that mental health can change over time. The Centers for Disease Control and Prevention (CDC) suggests that 50% of all people will be diagnosed with a mental illness at some point in their life.⁶

TYPES

Some of the different types of psychopathology include, but are not limited to:

- Anxiety disorders
- Bipolar disorders
- Depressive disorders
- Disruptive, impulse-control, and conduct disorders
- Dissociative disorders
- Eating disorders
- Neurocognitive disorders
- Neurodevelopmental disorders
- Obsessive-compulsive disorders
- Personality disorders
- Schizophrenia spectrum and other psychotic disorders
- Sleep disorders
- Somatic symptom disorders
- Trauma- and stressor-related disorders
- Substance-related disorders

HISTORY OF THE STUDY OF MENTAL ILLNESS

We've come a long way since the earliest beginnings of trying to make sense of mental illness. Although individuals with mental health issues still face stigma and a lack of understanding, things were very different in the past. Hippocrates, the 4th century BC Greek physician, rejected the notion of evil spirits and argued instead that mental illness was a disease of the brain relating to imbalances of bodily humors, or chemicals in the body fluids. Around the same time, the philosopher Plato argued that mental distress involved issues of virtue, morality, and the soul.

If you lived in the 16th century with a mental health problem, chances are you would not have been treated very well. At that time, mental illness was often viewed from a religious or superstitious point of view. Accordingly, it was assumed that people demonstrating strange behavior must have been overtaken by evil spirits or demons. The cure? You might have been tortured to bring you back to sanity. If that didn't work? Execution. Later, in the 19th century, interest surged in the role of childhood and trauma in the development of mental illness. Following on the heels of this era, Sigmund Freud introduced talk therapy to deal with these unresolved childhood issues. As of the present day, our understanding of mental illness has broadened, and so, thankfully, have the available treatments.

PSYCHOPATHOLOGY IS A TERM WHICH REFERS TO EITHER THE STUDY OF MENTAL ILLNESS OR MENTAL DISTRESS OR THE MANIFESTATION OF BEHAVIOURS AND EXPERIENCES WHICH MAY BE INDICATIVE OF MENTAL ILLNESS OR PSYCHOLOGICAL IMPAIRMENT.

MENTAL STATE EXAMINATION

Mental State Examination (MSE) is compared with physical examination as a reliable method of objective data investigation. There is a growing concern with psychiatric clinics, nosology, and the reliability of diagnostic interview methods as a source of valid diagnostic strategy. Efforts to achieve an international diagnosis protocol have been unsuccessful or polemical. This paper focuses on psychopathology, MSE, and mental function development within Brazilian psychiatry over the last few decades.

Methods: Searches, interviews, and narrative reviews were done to look for systematic ways in which to conduct MSE, mental functions, symptom clusters, orientations about data observation and records. Brazilian psychopathology textbooks were examined, if they provided access to consolidated knowledge on psychopathology examination.

Results: Sixteen textbooks were selected from a 49 year span. Descriptive psychopathology with phenomenological orientation was the primary trend in the MSE. Concepts derived from different traditions, most lacking common terminology, suggested some divergence among authors. Recommendations for patient observation and how to collect objective data was clear, but MSE standardization efforts were missing. A detailed description of mental function abnormalities was the main MSE record strategy, without consensus about ways to summarize and record this data. In an examination summary, mental strata was divided into "mental functions," and MSE subsets were frequent. All authors considered the following mental functions: consciousness, perception, thought, memory, attention, orientation, and volition.

Discussion: Psychiatric competence demands MSE proficiency. Official documents are not clear about performance and recording standards. MSE data was usually recorded through descriptive psychopathology. A shift from detailed descriptive findings, to an array of observed pathological elements, described through a mental function checklist was observed over time. Clinical practice and research guidelines should consider the development of reliable MSE practices; however, it has been neglected by modern psychiatry/neuroscience through the excessive emphasis on interview protocols. Better MSE practices, and the improvement of bedside skill in psychiatry are necessary and depend on the recovery of psychopathological debates and semiological reasoning, which will allow the return of phenomenology-oriented "observational" techniques.

In modern clinical medicine, a diagnosis is obtained through the crossover of symptoms, obtained

by anamnesis or by a clinical interview, and signs of symptoms, obtained through a physical examination and laboratory or image tests (). The former is supposed to spark multiple hypotheses which the clinician then further investigates by looking at patient's signs and symptoms. Semiology has been described in many textbooks as Porto () or Bates (), and was over time formalized as the paramount method of clinical examination in internal medicine. Such standard foundational programs were made possible through Claude Bernard's experimental medicine (), confirmed by Alvan Feinstein one century later, whereby stating that recent clinical epidemiology belongs to the same epistemological strata (). The same method was implemented in most medical specialties, including psychiatry (). With regard to general medical practice, physical examination (PE), lab, and image procedures provide the standard method to gather objective information, which is then used to refine the previously elaborated hypothesis through the anamnesis/interview method. The very idea of a PE and semiology was strengthened by the transformations of modern medicine, and was consolidated with the Flexnerian reformation of medical schools ,).

Psychiatry has tried to take part in this agenda and match such standards (). Clinical interviews as a standard procedure for anamnesis in psychiatry, has been rigorously investigated. An extensive bibliography, concerning how to improve an examiners agreement about symptoms, and a rising consensus about the need for a minimal structure for better clinician reliability, is now evident(). Mental health practice often uses Mental State Examination (MSE) as an equivalent to PE from routine clinical examination and as a reliable method for objective data gathering , -), since PE and MSE are logically correlated. However, clinical interview/anamnesis is previous to, and also guides PE procedures and laboratory searches, but it is the core of the mental/psychic examination process and used predominately in most cases. However, the interview is a narrative, history taking method, and not an objective sign gatherer tool.

The interview should be a narrative, recollection method, not an objective investigative tool. PE is consistently mentioned throughout almost all propaedeutical textbooks in medicine, with minimal, if not aesthetical, variations. MSE however has not achieved any international protocol or structured general tool, not even a minimal array of standard techniques and clinical report methods. Although MSEs widespread use as a PE correlative might not be suitable and may also be equivocated ,), it still universally used to gather data, objective information and evidence in mental health practice. MSE was simultaneously developed in different regions of the world, influenced by philosophically-oriented ideas on psychopathology (). Many psychopathology textbooks have also been written in different languages, according to different traditions, which have resulted in vast variations in technique and nomenclature). Nevertheless, mental semiology has been overlooked in most historiographical efforts, despite the importance of nosological history).

In the last 30 years, new trends in the history of psychiatry in Brazil developed, but none has considered mental examination. Estellita-Lins attempted to emphasize the phenomenology of living space (*espace vécu*) in Jaspers Psychopathology Textbook and its vital role concerning signs, "evidence" and examination (). Cheniaux () reviewed some of the Brazilian, and even foreign textbooks about "descriptive psychopathology," searching for conceptual regularity or terminological "uniformity" among authors, but MSE was not addressed. Viotti Daker worked on the main Brazilian textbook by Nobre de Melo, examining its psychopathological models (). Again, the MSE was not mentioned, but Melo's emphasis on fully assessing the person, before evaluating the particular functions subdivision, is noteworthy.

There is an increasing concern related to clinics and nosology in psychiatry. This concern might be

traced back to Nancy Andreassen's claim concerning the loss of psychopathological knowledge by younger psychiatrists, and to Parnas' Danish group that contested the validity of the schizophrenia nosologic construct in DSM/ICD, further extended to the unreliability of diagnostic interview methods with structured diagnostic questionnaires (). We should also mention Jacob's questioning of MSE training in India (), Aragona's interrogation about the collaboration of neuroscience in psychiatric diagnosis, among many others). As Rodrigues and Banzato have stated, if a sound agreement concerning the "validity" of a concept in psychiatry had already been achieved, there would not be such confusion around it).

We foresee epistemological issues concerning psychiatry and mental health care, that have not yet been resolved, as the importance of examination skills and training in the evidence-based era. These themes are not simply classificatory issues but are fundamental psychopathological efforts demanding a discussion concerning the diagnosis process in mental health and psychiatry. This study deals with modern psychiatry from a historical perspective but addresses some clinical problems such as MSE, examination reporting, patient records and psychopathology teaching/transmission. A narrow comprehension of what evidence means may have been overlooked such as bedside skills and in particular phenomenological examining tradition (-). Maybe ongoing "taxonomic issues" and "classification wars" in psychiatry () are fair and useful, but we should also pinpoint some relevant matters that concern the examination, clinical reasoning and the diagnostic process itself). Aiming to elucidate the origins, development, and methods of how MSE has been consolidated in Brazil, a review was carried out on the national literature.

METHODS

MSE still lacks proper categorization in MESH and DeCS, and the best results of descriptors or key word searches were related to standard clinical interviews, therefore unsuitable for systematic MSE research purposes. Textbooks are known to be the introductory means to access expert knowledge in the medical field as defined by Ludwig Fleck . It was then decided to consider textbooks on psychopathology as a primary reference, following a timeline based on its reference and contents. A backward reference search was carried out at the start of 2017, using the Universidade Federal do Rio de Janeiro Library System, to look for psychopathology textbooks written or edited by Brazilian authors (UFRJ, Rede Minerva).¹ The same search strategy was extended to main bookstore digital systems, and sites specialized in old or out of print editions, and finally to Google and Google Scholar. The main search string used was "psicopatologia" or "psiquiatria."

RESULTS

An initial list of 35 textbooks was selected. Among them were textbooks translated into Portuguese, not edited or written by Brazilian authors, and which were therefore excluded. Other books without any relevant chapters on MSE were also excluded. Twelve textbooks were finally chosen for the present study. The original list of books found and selected are presented in , . Whenever possible, the first and last edition of each book was consulted, and discussions about systematic ways to conduct MSE, the ordering of MSE topics (distinct functions), orientations about data gathering and registration, definitions about "mental functions" and its levels, symptom clusters, groupings and set organization, were studied. Referenced articles and books citations were also checked. In older textbooks, terms and notions that are semantically related to MSE have changed over time. Therefore, any mention of a mental examination that clearly described careful mental observation techniques or descriptions was considered as similar or equivalent to MSE.

TABLE 1

Table 1. Textbook set with editions, publication years, and the 12 titles (in bold) chosen for investigation of MSE.

TABLE 2

Table 2. MSE in the investigated textbooks, number of items, how it is named, and their items or assessed functions. A comprehensive review was carried out on Brazilian authors, researchers and literature, focusing on different MSE traditions, describing its various approaches and MSE segmentation around psychic functions. The list of discrete elements assembled into MSE was studied in detail. A structured method to register significant psychopathological abnormalities/anomalies through examinations did show up in the search results. It was identified as “súmulapsicopatológica” (psychopathological summary) in some textbooks.

The works examined spanned over the last 49 years. The books were written mostly by psychiatrists with clinical expertise, working as University Professors or lecturers. Most publications were designed to teach psychopathology to medical doctors being trained as a resident/internist in psychiatry. No MSE standard was identified, even though every author confirmed its relevance and consistency. Most authors provided orientations on how to proceed with a careful patient observation during an interview, aimed at obtaining objective data. The most referred method, to organize and register MSE, consistently cited by some authors, was descriptive psychopathology with a phenomenological orientation. Textbooks agreed and actively encouraged a very detailed description of observed mental functions as the best way to record MSE. Additionally, there was no agreement on how to summarize its components (–, –).

Throughout the time span studied, MSE was not the standard term used to refer to psychic examination and was first adopted in 2000 in the Brazilian psychopathology and semiology textbook by Paulo Dalgalarrodo (), after which it was consistently used. It remains unclear if the term was chosen because of evidence-based efforts on examination, or if it represents a particular tradition. Regardless, Luiz Salvador de Miranda Sá Jr mentioned “mental examination,” an expression semantically related (), and Elias Paim called it “psychic examination” around 1976, as did Leme Lopes in about 1980 (). The only author that did not use MSE after 2000 was Claudio Lyra Bastos, who still mentioned “Psychic Examination” ().

All authors used subdivisions to analyze and describe MSE, but each provided a specific set. Even though there was a clear consensus that consciousness could only be artificially fragmented for didactic purposes, no agreement, convergence or discussion about the nature or number of necessary items could be identified. The theoretical basis underlying the operating subdivisions is therefore lacking. It remains unclear how these mental strata turned into a divided set of “mental functions.” shows the items that form MSE, according to each author. A concise examination summary through “súmula psicopatológica” was mentioned by only four authors (). It was not possible to track the origins of this notion, since the authors did not mention or contextualize it. Some hypothesis is developed through discussion.

It is noteworthy that among the initial textbook list, some belonged to a field aimed at researching psychotherapy and psychoanalysis— therefore promoting a broader signification of psychopathology. Although these books were not included, and considering that psychoanalytic psychopathology is different from descriptive psychopathology, it probably suggests that psychoanalysis has had

some influence in Brazilian psychiatric practices, perhaps in a slightly different way than what occurred in the United States (, ,). The term “interview” has widespread use when referring to the diagnostic and therapeutic encounter with patients, including psychoanalytical sessions, which may add further confusion when searching for Psychiatric methods of MSE using indexed expressions, and which justifies the frequency of these textbooks in the initial search sample. A better evaluation of such influence would be desirable, but it is out of the scope of this paper.

DISCUSSION

Mental Health as a Brazilian tradition started in the nineteenth-century, after the creation of the hospice, by a Portuguese emperor (). It was not before the beginning of 1900, however, that academic psychiatry began to thrive, particularly after studies published by Juliano Moreira, Ulisses Pernambucano, followed by studies on forensic psychiatry published by Nina Rodrigues and Franco da Rocha psychiatry. The first psychopathology textbook edited by a Brazilian author was published by Isaías Paim at the very end of the 1960s as far as we were able to trace. Paim's textbook stresses that psychopathology is not a psychiatric “tool,” but an entirely different “science,” that could be applied by psychiatrists to comprehend and investigate mental illness. Influenced by German and French authors, Paim thoroughly recommended detailed observations and descriptions of subjective reports and behaviors as the best way to register and carry out psychic examination. This coupling of observation and description was continually reinforced by most authors analyzed. The vast majority of textbooks considered MSE with clear subdivisions, except Paim's) *Psychiatry Treatise*. The number of partitions ranged from 6 up to 18 items. The first time they are referred to as “Mental Functions” in our textbook sample was in Dalagalarrondo's “*Psicopatologia e Semiologia*.” Despite considerable variations in mental function descriptions and items adopted, all authors have explicitly considered the following mental functions: consciousness, perception, thought (not frequently comprising its 3-fold structure—Flow, Process, and content/Beliefs), memory, attention, orientation, and volition. Paim did not list mental functions in his treatise but had openly used it in his 1969 psychopathology textbook. These conceptual developments in Brazilian psychopathology call for further studies. We considered them as hints at the importance of mental function fragmentation and structure in psychopathology.

It was not possible to identify how subdivisions were adopted or created according to Brazilian textbooks. The lack of theoretical background may be responsible for the significant variation observed. Dividing or stratifying MSE seems to be the best method to analyze and to conveniently engage in description efforts, to evaluate psychic life. A discussion concerning ways to split MSE for adequate observation and educational purposes is out of the scope of the present review, but highly desirable. Since there are no globally standardized guidelines on psychopathology training (), bedside examination skills must be regarded seriously, as an asset worth further exploring. This chronologically considered textbook series, suggests that the first Brazilian authors that wrote about psychopathology—Nobre de Melo, () and Isaías Paim, ()—did not aim to or were not used to describe MSE as mental function subdivisions, but were eager to build long and meticulous reports of observed behavior, through a personal interaction with patients. Contemporary Brazilian authors however usually mention clear descriptions of mental function subdivisions, setting standards on how to study MSE and how to describe it. It was not possible to identify a “standard” MSE organization, although a written description of all that is observed is consistent in both older and recent textbooks.

We could not identify any efforts aimed toward comparative clinical psychopathology. The origins of the clinical resume called “*súmula psicopatológica*” could not be identified. It may

have a forensic and juridical background, as its etymology suggests. Besides lawsuit writing rights, there were many other compulsory examination practices that the Brazilian and then the eugenics Constitution (1937) recommended. Psychiatrists were accountable for defining a person's state of mental health in many common judiciary cases such as criminal subjects, couples before marriage, institutionalized children, among others. For instance, forensic demands synthesis during a long diagnostic process and extensive judicial records. Some leading psychiatrists, such as Franco da Rocha were very fond of this reporting procedure after clinical examination. A historiographic article, reviewing old patient files, depicts an explicit use of "súmula" by psychiatrists when writing down their patient's observations around 1929. It is then possible to affirm that the use of "súmula" as the name given to the set of observed signs and symptoms in psychiatric interview was already widespread in Brazilian psychiatry by the early twenties.

Within the textbook set investigated, the first register of the word "súmula"—as a concise list of mental function subdivisions, containing psychopathological disturbances, observed through MSE—appears in Dalgarrondo's textbook. The term "súmula psicopatológica" was also mentioned in Cheniaux psychopathology treatise. Cheniaux's communication, however, admitted that this precise notion had been in colloquial use since the early 90s, and declared that he was first introduced to it by prof Dr. Miguel Chalub, who also introduced him to categorized lists of mental functions with descriptive purposes².

Chalub, in turn, declared that he learned this exact expression from Professor José Leme Lopes, the chairman of UFRJ Psychiatric Institute in the seventies. However, Leme Lopes' "Diagnoses in Psychiatry," published in 1980 does not contain any mention of it (). Neither Chalub nor Cheniaux needed to trace its roots but acknowledged its common use in bedside practices. Both authors hypothesized that it was borrowed from international psychopathological tradition, and that it become mainstream through everyday use in many institutional facilities in Brazil. The same inference about the expression "mental function" might therefore be adopted.

Efforts to standardize medical examinations have been at the core of scientific experimental medicine. These attempts have branched alongside psychopathology developments. The systematization of diagnostic psychiatric interview has been considered a significant step toward the improvement of clinician reliability. However, doubts about the best way to use it clinically, still remains. Countries, like Denmark, have already regulated the use of at least one standard interview in clinical practice, for any diagnosis in psychiatry and others such as Australia use diagnostic tools in a mental health triage. These are anamnesis/interview standardized methods however, not MSE.

ICD and DSM contain examining tools (Schedules for Clinical Assessment in Neuropsychiatry—SCAN, Structured Clinical Interview for DSM-5 Disorders—SCID-5, Mini International Neuropsychiatric Interview—MINI). OPCRIT is supposedly useful to organize MSE, although it seems vastly different from what is usually accepted in descriptive psychopathology, since it provides neither mental function subdivisions nor any coordinated step care to enhance MSE observation and description). Nevertheless, the entire MSE procedure demands more than a structured interview, since it is not analogous to anamnesis, but correlated to the PE procedure. We suppose that MSE is not entirely congruent or wholly embedded in semi-structured interview protocols. Attempting to turn personal experiences into objective data is probably a source of unreliability between examiners, as previously described. As far as we know, there is no standard method or procedure for MSE.

Parnas argues that DSM-V and ICD-10 were constructed to avoid subjectivity, but its developers have

not accomplished such intent . He emphasizes that it is easy to find objective, observable signs inside many diagnostic criteria, such as “blunt affect” in schizophrenia or “fast speech” in mania. Such categories should have been avoided in a categorial diagnostic system based on a standard interview, that was developed to eliminate examiner opinion as a source of unreliability. In a standard interview, all diagnostic emphasis relies on a “yes” and “no” type series of questions, directed at the patient, who decides if a symptom is or is not present. If MSE categories were to be used in a categorial diagnostic system, it should provide a template MSE method to be followed by the examiner during practice. A list of valid abnormal psychopathological categories for classificatory issues should also be provided.

In Brazil, at least one recent official report, demands a careful description of MSE subdivisions into patient record files . The official document on psychiatric training in Brazil states that all candidates must be proficient on MSE skills (apply and record). Despite that, a standard MSE is not explicitly provided, and it is not clear how it should be done or registered . The Brazilian Association of Psychiatry (ABP), the professional body responsible for education, training, setting and raising standards in Brazilian Psychiatry, did not mention or provide any statements concerning MSE, until now (4th of May 2018).³

Since 2014, doctors that have experience in psychiatry or that have attended a psychiatry internship and desire to obtain a certificate in psychiatry must be submitted to a practical clinical examination test, in which they are observed while interviewing and examining a patient.³ It is not evident in the documentation how the MSE, or even the clinical interview, would be assessed and what they are expected to perform during a practical examination test . The only clue provided is from Dalgalarondo's textbook inclusion of bibliographic references, which suggests that a detailed descriptive MSE and “súmula psicopatológica” is expected from candidates.

CONCLUSION

Our research suggests that descriptive psychopathology seems to be the usual MSE method used to observe and record data, not much different from the European schools or other parts of the world . Seven mental functions were consistently identified in the selected textbooks (consciousness, perception, thought, memory, attention, orientation, and volition), however no standard MSE and mental functions set was found. It was possible to identify a shift from the semiological discussion in Brazil during the last 50 years, from a detailed descriptive routine observed during the patient interaction to an array of observed pathological elements described through a mental function checklist. The “súmula psicopatológica” appears to be one pattern of examination, which could be improved or updated. Ethnopsychiatry or transcultural psychiatry research is needed regarding MSE, to achieve a regional attunement with patients and to comprehend the MSE practice in general.

MSE altogether, with anamnesis or a clinical interview, provides the basis for psychiatric clinics and research. Good clinical exercise and research guidelines in psychiatry must include the development of reliable MSE practice; however, it seems to have been neglected by modern psychiatry and neuroscience. Stressing interview protocols might flatten examination skills and impoverish MSE abilities. Development of better MSE practices and the improvement of bedside skills in psychiatry rely on reviving the psychopathological debate and semiologic reasoning of a vibrant tradition, and allowing for the return to a phenomenology-oriented “observational” technique.

Since we are now dealing with knowledge that has almost become lost, the recovery of the history of psychiatry and of national/regional practices plays a paramount role in bringing previous

experiences to the foreground, that could assist in the pursuit of this everlasting objective. In other words, the history of psychiatry plays a critical and hermeneutical role, and particular national attempts and enterprises in psychopathology should be re-evaluated. Practice standardization is now an international goal, but should not lead to one-way, top-down unification from high-tech oriented research centers, as global mental health policies have already advised. A call for diverse, multiple and manifold cultural experiences in MSE is necessary for the future development and improvement in Psychiatric practice and research.

LIMITATIONS

This is a comprehensive review about Psychopathology Textbooks in Brazil and, although rigorous work has been done, it is possible that some critical publication is lacking due to methodological bias. Furthermore, because we dealt with vintage books, which have not yet been cataloged by electronic repositories, it is possible that old Brazilian Textbooks with some contradictory information were not found. Mainstream psychiatry has neglected psychiatric semiology, Mental State Examination, Mental Functions and its role in psychopathology standards and clinical practice, so it is possible that other authors have already answered the questions presented here, which was not picked up by our search strategy. This is a very complicated issue that needs to be addressed by a multi-professional team of linguists, anthropologist, science and medicine historians, and psychiatry practitioners. Further work may clarify and better elucidate these questions and issues.

CLASSIFICATION OF PSYCHOPATHOLOGY: CONCEPTUAL AND HISTORICAL BACKGROUND

While not all psychiatric disorders have such dramatic “avalanche-like” transitions, they are fairly common in clinical psychiatry and challenge the authors’ conclusions that there is little viable evidence that psychiatric disorders need to be understood from a categorical perspective. Let me turn to a quite different issue. I was concerned by the manner in which the authors characterize the DSM process: “group discussions and associated political processes”, manifesting “sociopolitical dynamics”, issuing ex cathedra decisions with the final diagnoses resulting from “presumed authority and fiat”. This tone will not aid interdisciplinary discourse. The authors imply that they are the objective scientists while those who worked on DSM are, by comparison, bogged down in political discourse and constrained by old-fashioned historical dictates. While this is not the place to discuss this in detail, any organized effort in science to develop classifications involves “sociopolitical dynamics”. Readers who think otherwise might consult a history of the decision of the International Astronomical Union to remove Pluto from the official list of planets.

I want to conclude by talking about standards of diagnostic validation. At the risk of over-simplification, the Hierarchical Taxonomy of Psychopathology (HiTOP) program emphasizes psychometric methods in its typological proposals. Such methods have been key in the history of psychology, for example in the development of personality typologies and measures of various cognitive skills. So, it is sensible that they should be applied in the area of psychopathology. However, this approach differs considerably from the medical tradition emphasized by DSM. Put simply, the medical tradition wants diagnoses that tell us a lot about the patient — the course, the likely etiologic process, the best treatment, etc.. We organize our literature around our diagnoses, from cohort studies to randomized controlled trials.

The specific articulation of this viewpoint in psychiatry was first given by Robins and Guze with their list of validators, substantially expanded since then. Since DSM-III, the role of the evaluation of validators in diagnostic change has, albeit somewhat unevenly, gradually increased. The main approach

has been the use of literature reviews trying to summarize available information on validators. These questions were the specific focus of the Scientific Review Committee that evaluated every proposed diagnostic change in DSM-5. The procedures developed for change in DSM-5 by the American Psychiatric Association's Steering Committee are empirically rigorous and data driven. It is not surprising that the scientific disciplines of psychiatry and clinical psychology have developed different approaches to the creation and evaluation of diagnostic entities/dimensions. Optimal communication between these two disciplines, however, requires an understanding of the similarities and differences in these approaches, the relative strengths and limitations of each approach, and the acceptance by both sides that each is likely to be able to contribute meaningfully to the difficult challenge of designing an optimal psychiatric classification.

THE INTERNATIONAL CLASSIFICATION OF DISEASES

A second classification system, the International Classification of Diseases (ICD), is also widely recognized. Published by the World Health Organization (WHO), the ICD was developed in Europe shortly after World War II and, like the DSM, has been revised several times. The categories of psychological disorders in both the DSM and ICD are similar, as are the criteria for specific disorders; however, some differences exist. Although the ICD is used for clinical purposes, this tool is also used to examine the general health of populations and to monitor the prevalence of diseases and other health problems internationally (WHO, 2013).

The ICD is in its 10th edition (ICD-10); however, efforts are now underway to develop a new edition (ICD-11) that, in conjunction with the changes in DSM-5, will help harmonize the two classification systems as much as possible (APA, 2013). A study that compared the use of the two classification systems found that worldwide the ICD is more frequently used for clinical diagnosis, whereas the DSM is more valued for research (Mezzich, 2002). Most research findings concerning the etiology and treatment of psychological disorders are based on criteria set forth in the DSM (Oltmanns & Castonguay, 2013). The DSM also includes more explicit disorder criteria, along with an extensive and helpful explanatory text (Regier et al., 2012). The DSM is the classification system of choice among U.S. mental health professionals, and this chapter is based on the DSM paradigm.

THE COMPASSIONATE VIEW OF PSYCHOLOGICAL DISORDERS

As these disorders are outlined, please bear two things in mind. First, remember that psychological disorders represent extremes of inner experience and behavior. If, while reading about these disorders, you feel that these descriptions begin to personally characterize you, do not worry—this moment of enlightenment probably means nothing more than you are normal. Each of us experiences episodes of sadness, anxiety, and preoccupation with certain thoughts—times when we do not quite feel ourselves. These episodes should not be considered problematic unless the accompanying thoughts and behaviors become extreme and have a disruptive effect on one's life. Second, understand that people with psychological disorders are far more than just embodiments of their disorders.

We do not use terms such as schizophrenics, depressives, or phobics because they are labels that objectify people who suffer from these conditions, thus promoting biased and disparaging assumptions about them. It is important to remember that a psychological disorder is not what a person is; it is something that a person has—through no fault of his or her own. As is the case with cancer or diabetes, those with psychological disorders suffer debilitating, often painful conditions that are not of their own choosing. These individuals deserve to be viewed and treated with compassion, understanding, and dignity.

WHAT IS PSYCHOTHERAPIES: PSYCHOANALYSIS, PERSON-CENTERED, GESTALT, EXISTENTIAL, ACCEPTANCE COMMITMENT THERAPY, BEHAVIOR THERAPY, REBT, CBT, MBCT, Play therapy, Positive psychotherapy, Transactional Analysis, Dialectic behavior therapy, Art therapy, Performing Art Therapy, Family therapy?

PSYCHOTHERAPIES: PSYCHOANALYSIS, PERSON-CENTERED, GESTALT, EXISTENTIAL
Psychotherapy is a general term for treating mental health problems by talking with a psychiatrist, psychologist or other mental health provider. During psychotherapy, you learn about your condition and your moods, feelings, thoughts and behaviors. Psychotherapy helps you learn how to take control of your life and respond to challenging situations with healthy coping skills. There are many types of psychotherapy, each with its own approach. The type of psychotherapy that's right for you depends on your individual situation. Psychotherapy is also known as talk therapy, counseling, psychosocial therapy or, simply, therapy.

Why it's done Psychotherapy can be helpful in treating most mental health problems, including:

- **Anxiety disorders**, such as obsessive-compulsive disorder (OCD), phobias, panic disorder or post-traumatic stress disorder (PTSD)
- **Mood disorders**, such as depression or bipolar disorder
- **Addictions**, such as alcoholism, drug dependence or compulsive gambling
- **Eating disorders**, such as anorexia or bulimia
- **Personality disorders**, such as borderline personality disorder or dependent personality disorder
- **Schizophrenia** or other disorders that cause detachment from reality (psychotic disorders)

Not everyone who benefits from psychotherapy is diagnosed with a mental illness. Psychotherapy can help with a number of life's stresses and conflicts that can affect anyone. For example, it may help you:

- **Resolve conflicts** with your partner or someone else in your life
- **Relieve anxiety or stress** due to work or other situations
- **Cope with major life changes**, such as divorce, the death of a loved one or the loss of a job
- **Learn to manage unhealthy reactions**, such as road rage or passive-aggressive behavior
- **Come to terms with an ongoing or serious physical health problem**, such as diabetes, cancer or long-term (chronic) pain
- **Recover from physical or sexual abuse** or witnessing violence
- **Cope with sexual problems**, whether they're due to a physical or psychological cause
- **Sleep better**, if you have trouble getting to sleep or staying asleep (insomnia)

In some cases, psychotherapy can be as effective as medications, such as antidepressants. However, depending on your specific situation, psychotherapy alone may not be enough to ease the symptoms of a mental health condition. You may also need medications or other treatments.

RISKS

Generally, there's little risk in having psychotherapy. But because it can explore painful feelings and experiences, you may feel emotionally uncomfortable at times. However, any risks are minimized by working with a skilled therapist who can match the type and intensity of therapy with your needs. The coping skills that you learn can help you manage and conquer negative feelings and fears.

How you prepare

HERE'S HOW TO GET STARTED:

- **Find a therapist.** Get a referral from a doctor, health insurance plan, friend or other trusted source. Many employers offer counseling services or referrals through employee assistance programs (EAPs). Or you can find a therapist on your own, for instance, by looking for a professional association on the Internet.
- **Understand the costs.** If you have health insurance, find out what coverage it offers for psychotherapy. Some health plans cover only a certain number of psychotherapy sessions a year. Also, talk to your therapist about fees and payment options.
- **Review your concerns.** Before your first appointment, think about what issues you'd like to work on. While you also can sort this out with your therapist, having some sense in advance may provide a good starting point.

CHECK QUALIFICATIONS

Before seeing a psychotherapist, check his or her background, education, certification, and licensing. Psychotherapist is a general term rather than a job title or indication of education, training or licensure. Trained psychotherapists can have a number of different job titles, depending on their education and role. Most have a master's or doctoral degree with specific training in psychological counseling. Medical doctors who specialize in mental health (psychiatrists) can prescribe medications as well as provide psychotherapy.

Examples of psychotherapists include psychiatrists, psychologists, licensed professional counselors, licensed social workers, licensed marriage and family therapists, psychiatric nurses, or other licensed professionals with mental health training. Make sure that the therapist you choose meets state certification and licensing requirements for his or her particular discipline. The key is to find a skilled therapist who can match the type and intensity of therapy with your needs.

What you can expect

YOUR FIRST THERAPY SESSION

At the first psychotherapy session, the therapist typically gathers information about you and your needs. You may be asked to fill out forms about your current and past physical and emotional health. It might take a few sessions for your therapist to fully understand your situation and concerns and to determine the best approach or course of action. The first session is also an opportunity for you to interview your therapist to see if his or her approach and personality are going to work for you. Make sure you understand:

- What type of therapy will be used
- The goals of your treatment
- The length of each session
- How many therapy sessions you may need

Don't hesitate to ask questions anytime during your appointment. If you don't feel comfortable with the first psychotherapist you see, try someone else. Having a good fit with your therapist is critical for psychotherapy to be effective.

STARTING PSYCHOTHERAPY

You'll likely meet in your therapist's office or a clinic once a week or every other week for a session

that lasts about 45 to 60 minutes. Psychotherapy, usually in a group session with a focus on safety and stabilization, also can take place in a hospital if you've been admitted for treatment.

TYPES OF PSYCHOTHERAPY

There are a number of effective types of psychotherapy. Some work better than others in treating certain disorders and conditions. In many cases, therapists use a combination of techniques. Your therapist will consider your particular situation and preferences to determine which approach may be best for you. Although many types of therapies exist, some psychotherapy techniques proven to be effective include:

- **Cognitive behavioral therapy (CBT)**, which helps you identify unhealthy, negative beliefs and behaviors and replace them with healthy, positive ones
- **Dialectical behavior therapy**, a type of CBT that teaches behavioral skills to help you handle stress, manage your emotions and improve your relationships with others
- **Acceptance and commitment therapy**, which helps you become aware of and accept your thoughts and feelings and commit to making changes, increasing your ability to cope with and adjust to situations
- **Psychodynamic and psychoanalysis therapies**, which focus on increasing your awareness of unconscious thoughts and behaviors, developing new insights into your motivations, and resolving conflicts
- **Interpersonal psychotherapy**, which focuses on addressing problems with your current relationships with other people to improve your interpersonal skills — how you relate to others, such as family, friends and colleagues
- **Supportive psychotherapy**, which reinforces your ability to cope with stress and difficult situations. Psychotherapy is offered in different formats, including individual, couple, family or group therapy sessions, and it can be effective for all age groups.

DURING PSYCHOTHERAPY

For most types of psychotherapy, your therapist encourages you to talk about your thoughts and feelings and what's troubling you. Don't worry if you find it hard to open up about your feelings. Your therapist can help you gain more confidence and comfort as time goes on. Because psychotherapy sometimes involves intense emotional discussions, you may find yourself crying, upset or even having an angry outburst during a session. Some people may feel physically exhausted after a session. Your therapist is there to help you cope with such feelings and emotions. Your therapist may ask you to do "homework" — activities or practices that build on what you learn during your regular therapy sessions. Over time, discussing your concerns can help improve your mood, change the way you think and feel about yourself, and improve your ability to cope with problems.

CONFIDENTIALITY

Except in rare and specific circumstances, conversations with your therapist are confidential. However, a therapist may break confidentiality if there is an immediate threat to safety (yours or someone else's) or when required by state or federal law to report concerns to authorities. Your therapist can answer questions about confidentiality.

LENGTH OF PSYCHOTHERAPY

The number of psychotherapy sessions you need — as well as how frequently you need to see your therapist — depends on such factors as:

- Your particular mental illness or situation
- Severity of your symptoms
- How long you've had symptoms or have been dealing with your situation
- How quickly you make progress
- How much stress you're experiencing
- How much your mental health concerns interfere with day-to-day life
- How much support you receive from family members and others
- Cost and insurance limitations

It may take only weeks to help you cope with a short-term situation. Or, treatment may last a year or longer if you have a long-term mental illness or other long-term concerns.

Results Psychotherapy may not cure your condition or make an unpleasant situation go away. But it can give you the power to cope in a healthy way and to feel better about yourself and your life.

GETTING THE MOST OUT OF PSYCHOTHERAPY

Take steps to get the most out of your therapy and help make it a success.

- **Make sure you feel comfortable with your therapist.** If you don't, look for another therapist with whom you feel more at ease.
- **Approach therapy as a partnership.** Therapy is most effective when you're an active participant and share in decision-making. Make sure you and your therapist agree about the major issues and how to tackle them. Together, you can set goals and measure progress over time.
- **Be open and honest.** Success depends on willingness to share your thoughts, feelings and experiences, and to consider new insights, ideas and ways of doing things. If you're reluctant to talk about certain issues because of painful emotions, embarrassment or fears about your therapist's reaction, let your therapist know.
- **Stick to your treatment plan.** If you feel down or lack motivation, it may be tempting to skip psychotherapy sessions. Doing so can disrupt your progress. Try to attend all sessions and to give some thought to what you want to discuss.
- **Don't expect instant results.** Working on emotional issues can be painful and may require hard work. You may need several sessions before you begin to see improvement.
- **Do your homework between sessions.** If your therapist asks you to document your thoughts in a journal or do other activities outside of your therapy sessions, follow through. These homework assignments can help you apply what you've learned in the therapy sessions to your life.
- **If psychotherapy isn't helping, talk to your therapist.** If you don't feel that you're benefiting from therapy after several sessions, talk to your therapist about it. You and your therapist may decide to make some changes or try a different approach that may be more effective.

PSYCHOANALYTIC PSYCHOTHERAPY

Psychoanalytic or Psychodynamic Psychotherapy is a form of clinical practice which is based on psychoanalytic theory and principles. It's a treatment modality that in many ways is quite similar to psychoanalysis, although often considered less intense. Psychoanalytic psychotherapy utilizes psychoanalytic theories as the frame for formulation and understanding of the therapy process. These multiple theories apply to the psychotherapy situation, with a focus on increasing self understanding and deepening insight into emotional issues and conflicts which underlie the presenting difficulties. Typically therapists make use of exploration of unconscious thoughts and feelings, understanding

aspects of the relationship between therapist and patient, which may relate to underlying emotional conflicts, interpretation of defensive processes which obstruct emotional awareness, and consideration of issues related to sense of self and self esteem.

Most often therapy sessions occur between one and four times weekly. The focus is on exploration of the patient's inner experience, emphasizing this as it occurs in current daily life, as it carries over from significant and influential events and relationships of the past, and as it is manifest in the context of the therapeutic relationship. The efficacy of psychoanalytic psychotherapy, often referred to as psychodynamic psychotherapy, has been well documented. Current research indicates this as a powerfully curative treatment. P

WHO IS A PSYCHOANALYTIC PSYCHOTHERAPIST?

Clinicians who practice psychoanalytic or psychodynamic psychotherapy all share a common orientation about how to assess and treat emotional problems. Most psychodynamic therapists have extensive training. The formats and contexts of this training are wide ranging — from graduate or medical school instruction and case supervision to **rigorous and formal** advanced psychotherapy training programs or psychoanalytic training. The vast majority of psychoanalytic psychotherapists elect to pursue ongoing additional training beyond their graduate or medical school instruction in order to deepen and extend their skills. Psychoanalytic psychotherapists can be found in a variety of professional disciplines, including social work, psychology, psychiatry, and psychiatric nursing.

WHO CAN BENEFIT FROM PSYCHOANALYTIC PSYCHOTHERAPY?

While there is no simple answer to this question, it is important to emphasize that psychodynamic psychotherapy can be an effective treatment or component of a combined treatment for a very wide range of emotional and psychological difficulties. This includes, in one form or another all ages, and many diagnostic categories. The range of indications is significantly wider than that for psychoanalysis. In order to address this question for any individual, a careful evaluation with a well qualified therapist is an important first step.

PERSON-CENTERED THERAPY (ROGERIAN THERAPY)

Person-centered therapy was developed by Carl Rogers in the 1940s. This type of therapy diverged from the traditional model of the therapist as expert and moved instead toward a nondirective, empathic approach that empowers and motivates the client in the therapeutic process. The therapy is based on Rogers's belief that every human being strives for and has the capacity to fulfill his or her own potential. Person-centered therapy, also known as Rogerian therapy, has had a tremendous impact on the field of psychotherapy and many other disciplines.

ROGERIAN THEORY IN PSYCHOTHERAPY

Rather than viewing people as inherently flawed, with problematic behaviors and thoughts that require treatment, person-centered therapy identifies that each person has the capacity and desire for personal growth and change. Rogers termed this natural human inclination "actualizing tendency," or self-actualization. He likened it to the way that other living organisms strive toward balance, order, and greater complexity. According to Rogers, "Individuals have within themselves vast resources for self-understanding and for altering their self-concepts, basic attitudes, and self-directed behavior; these resources can be tapped if a definable climate of facilitative psychological attitudes can be provided."

The person-centered therapist learns to recognize and trust human potential, providing clients with

empathy and unconditional positive regard to help facilitate change. The therapist avoids directing the course of therapy by following the client's lead whenever possible. Instead, the therapist offers support, guidance, and structure so that the client can discover personalized solutions within themselves.

Person-centered therapy was at the forefront of the humanistic psychology movement, and it has influenced many therapeutic techniques and the mental health field, in general. Rogerian techniques have also influenced numerous other disciplines, from medicine to education.

SIX FACTORS NECESSARY FOR GROWTH IN ROGERIAN THEORY

Rogers identified six key factors that stimulate growth within an individual. He suggested that when these conditions are met, the person will gravitate toward a constructive fulfillment of potential. According to Rogerian theory, the six factors necessary for growth are:

- 1. Therapist-Client Psychological Contact:** This first condition simply states that a relationship between therapist and client must exist in order for the client to achieve positive personal change. The following five factors are characteristics of the therapist-client relationship, and they may vary by degree.
- 2. Client Incongruence or Vulnerability:** A discrepancy between the client's self-image and actual experience leaves him or her vulnerable to fears and anxieties. The client is often unaware of the incongruence.
- 3. Therapist Congruence or Genuineness:** The therapist should be self-aware, genuine, and congruent. This does not imply that the therapist be a picture of perfection, but that he or she be true to him- or herself within the therapeutic relationship.
- 4. Therapist Unconditional Positive Regard (UPR):** The clients' experiences, positive or negative, should be accepted by the therapist without any conditions or judgment. In this way, the client can share experiences without fear of being judged.
- 5. Therapist Empathy:** The therapist demonstrates empathic understanding of the clients' experiences and recognizes emotional experiences without getting emotionally involved.
- 6. Client Perception:** To some degree, the client perceives the therapist's unconditional positive regard and empathic understanding. This is communicated through the words and behaviors of the therapist.

GESTALT THERAPY

Gestalt therapy is a humanistic, holistic, person-centered form of psychotherapy that is focused on an individual's present life and challenges rather than delving into past experiences. This approach stresses the importance of understanding the context of a person's life and taking responsibility rather than placing blame. It can be a little intimidating to consider starting therapy, especially if you imagine yourself sitting in the therapy room talking about the past. Although revisiting the past is an important part of identifying what needs to be healed, Gestalt therapy is an approach that focuses more on the "here and now" experience of the client.

Gestalt, by definition, refers to the form or shape of something and suggests that the whole is greater than the sum of its parts. There is an emphasis on perception in this particular theory of counseling. Gestalt therapy gives attention to how we place meaning and make sense of our world and our experiences. Within Gestalt therapy, the client has space to safely explore their experiences without fear of judgment. In fact, the clients are encouraged to not simply talk about their emotions or experiences, but to bring them into the room so they can be processed in real-time with the therapist. Gestalt therapy suggests that, inherently, people strive for self-regulation and growth. However, we

sometimes develop techniques to emotionally survive unfortunate and painful experiences. Some of these techniques feel helpful in the short-term because they can help minimize our pain or distress. However, over the long-term, they leave us in more emotionally shaky places, unable to express ourselves. We may find it hard to interact with others, and difficult to learn how to effectively regulate ourselves and be whole, responsible beings.

STRENGTHS AND WEAKNESSES

Gestalt therapy has both some pluses and minuses. Research suggests that it can be effective for treating a variety of conditions including anxiety and personality disorders and is at least as effective as other psychotherapy approaches. Existential Psychotherapy

Existential psychotherapy is a style of therapy that places emphasis on the human condition as a whole. Existential psychotherapy uses a positive approach that applauds human capacities and aspirations while simultaneously acknowledging human limitations. Existential psychotherapy shares many similarities with humanistic psychology, experiential psychotherapy, depth psychotherapy, and relational psychotherapy.

TIMELINE OF EXISTENTIAL THERAPY

Existential therapy developed out of the philosophies of Friedrich Nietzsche and Soren Kierkegaard. As one of the first existential philosophers, Kierkegaard theorized that human discontent could only be overcome through internal wisdom. Later, Nietzsche further developed the theory of existentialism using concepts such as the will to power and personal responsibility. In the early 1900s, philosophers such as Martin Heidegger and Jean-Paul Sartre began to explore the role of investigation and interpretation in the healing process. Over the next several decades, other contemporaries started to acknowledge the importance of experiencing in relation to understanding as a method to achieving psychological wellness and balance.

Otto Rank was among the first existential therapists to actively pursue the discipline, and by the middle of the 20th century, psychologists Paul Tillich and Rollo May brought existential therapy into the mainstream through their writings and teachings, as did Irvin Yalom after them. The popular approach began to influence other theories, including logotherapy, which developed by Viktor Frankl, and humanistic psychology. At the same time, British philosophers expanded existentialism further with the foundation of The Philadelphia Association, an organization dedicated to helping people manage their mental health issues with experiential therapies. Other institutions that embody the theory of existentialism include the Society for Existential Analysis, founded in 1988, and the International Community of Existential Counselors, created in 2006.

EXISTENTIAL PSYCHOTHERAPY 'GIVENS'

Existential psychotherapy is based upon the fundamental belief that all people experience intrapsychic conflict due to their interaction with certain conditions inherent in human existence, which are known as givens. The theories recognize at least four primary existential givens:

- Freedom and associated responsibility
- Death
- Isolation
- Meaninglessness

A confrontation with any of the aforementioned conditions, or givens, fills an individual with a type of dread commonly referred to as existential anxiety. This anxiety is thought to reduce a person's

physical, psychological, social, and spiritual awareness, which may lead to significant long-term consequences. For example, the fact that each one of us and each one of our loved ones must die at some unknown time may be a source of deep anxiety to us, and this may tempt us to ignore the reality and necessity of death in human existence. By reducing our awareness of death, however, we may fail to make decisions that can actually safeguard or even enrich our lives. At the other end of the spectrum, people who are overly conscious of the fact that death is inevitable may be driven to a state of neurosis or psychosis. The key, according to existential psychotherapy, is to strike a balance between being aware of death without being overwhelmed by it. People who maintain a healthy balance in this way are motivated to make decisions that can positively impact their lives, as well as the lives of their loved ones. Though these people may not know how their decisions will actually turn out, they do appreciate the need to take action while they can. In essence, the reality of death encourages us to make the most of opportunities and to treasure the things we have.

Like death, the threat of isolation, the perceived meaninglessness of life, and the weighty responsibility of making life-altering decisions may each be a source of acute existential anxiety. According to the theories of existential therapy, the manner in which a person processes these internal conflicts, and the decisions they make as a result, will ultimately determine that person's present and future circumstances.

ACCEPTING FEARS AND OVERCOMING THEM

Existential psychotherapy encourages people to not only address the emotional issues they face through full engagement but to also take responsibility for the decisions that contributed to the development of those issues. People who participate in this form of therapy are guided to accept their fears and given the skills necessary to overcome these fears through action. By gaining control of the direction of their life, the person in therapy is able to work to design the course of their choosing. Through this work, people often come to feel both a sense of liberation and the ability to let go of the despair associated with insignificance and meaninglessness. Thus, existential psychotherapy involves teaching people in therapy to grow and embrace their own lives and exist in them with wonder and curiosity. Developing the ability to view life with wonder can help people be able to view the life experience as a journey rather than a trial and can also help eradicate the fear associated with death.

EXISTENTIAL THERAPISTS' PROCESS

Therapists who practice existential psychotherapy do not focus on a person's past. Instead, they work with the person in therapy to discover and explore the choices that lie before them. Through retrospection, the person in therapy and therapist work together to understand the implications of past choices and the beliefs that led those to take place, only as a means to shift to the goal of creating a keener insight into the self. In existential therapy, the emphasis is not to dwell on the past, but to use the past as a tool to promote freedom and newfound assertiveness. By coming to the realization that they are neither unique nor destined for a specific purpose, the person in therapy is able to release the obligatory chains that may have been preventing them from existing in fullness from moment to moment. When that happens, they then achieve the ability to become truly free.

HOW CAN EXISTENTIAL PSYCHOTHERAPY HELP?

People in therapy who are willing to explore the reasons for their intrapsychic conflicts and the decisions that led to their current circumstances can benefit greatly from existential psychotherapy. There are many behavioral and mental health issues that may be successfully treated with this therapeutic approach, including depression, anxiety, substance dependency, and posttraumatic stress

resulting from exposure to military combat, rape, childhood sexual abuse, interpersonal violence, or other life-threatening experiences. Individuals who respond to treatment tend to find meaning and purpose in their lives and often experience heightened self-awareness, self-understanding, self-respect, and self-motivation. The realization that they are primarily responsible for their own recovery often increases the likelihood that people in treatment will see beyond the limits of a therapy session and view recovery as a therapeutic process.

COMMON CONCERNS AND LIMITATIONS

Existential psychotherapy, much like other types of therapy, may be misunderstood by people who do not have a thorough grasp of the fundamental principles or scope of the associated theories. It can help to develop awareness of the principles, theories, and givens before and while participating in treatment. Common misperceptions of existential psychotherapy include the following beliefs:

- **One distinctive, united existential theory, free of internal tension, covers all the basic assumptions of existential psychology.** In fact, there are at least five categories of the approach, and most scholars view this as a strength of the approach, as it leads to consistent examination of the basic assumptions of the approach and allows for greater adaptability.
- **There is no difference between existential psychology and existential philosophy.** Though there are points of agreement between existential philosophy and existential psychology, there are also points of difference, and the variation in perspectives of the leading pioneers and scholars of the two fields help contribute to the development of each approach.
- **Existential psychology takes an antireligious or anti-spiritual approach, for example, denying the existence of God.** Though existential psychology is not innately religious and does discourage people from following one person or religion without question, it is also not anti-religious, and many of the leading scholars and pioneers were Christian theologians.
- **Existential and humanistic theories are the same thing.** Though there is agreement between the two theories, they are not identical. However, disagreements between these two schools of thought tend to be more degrees of emphasis and less complete divergences.
- **Existential psychotherapy takes a negative, dark, or pessimistic view of life.** Because writings on existential psychology can be read as pessimistic, due to their view that suffering can be embraced as part of the human existence.

This is not an encouragement of suffering, though, only recognition of the fact that it is an inescapable part of being human. What existential therapy does do is encourage people to embrace the reality of suffering in order to work through and learn from it. **The approach is fundamentally an intellectual one and, as such, is only beneficial to people of high intellect, who are not experiencing chronic behavioral or mental health conditions.** People of any intelligence level are capable of the awareness of their own humanity and able to make meaning of their emotions and anxieties. It is not necessary for a person to be a philosopher or scholar to benefit from the principles of existential therapy, and many people who are actively struggling with mental health issues can also be helped by the approach.

Because existential psychotherapy targets the underlying factors of perceived behavioral and mental health concerns, an existential approach may not directly address the primary issue a person in treatment is experiencing. Because of this, existential therapy, which is quite adaptable, is often used along with other approaches to treatment. Combining approaches can help maximize the effectiveness of both and promote greater recovery. Additionally, the in-depth, penetrative approach used in existential psychotherapy may not appeal to people who do not wish to explore their

intrapyschic processes, or who are solely interested in finding a quick fix for their mental health challenges.

ACCEPTANCE AND COMMITMENT THERAPY (ACT)

Acceptance and Commitment Therapy (ACT) encourages people to embrace their thoughts and feelings rather than fighting or feeling guilty for them. It may seem confusing at first, but ACT paired with **mindfulness-based therapy** offers clinically effective treatment. After all: Running away from any problem only increases the distance from the solution. The easiest way to escape from the problem is to solve it. Medical conditions such as anxiety, depression, OCD, addictions, and substance abuse can all benefit from ACT and Mindfulness-Based Cognitive Therapy (MBCT). ACT develops psychological flexibility and is a form of behavioral therapy that combines mindfulness skills with the practice of self-acceptance. When aiming to be more accepting of your thoughts and feelings, commitment plays a key role. In the case of ACT, you commit to facing the problem head-on rather than avoiding your stresses. Imagine committing to actions that help you facilitate your experience and embrace any challenge.

As you will see later in this piece, ACT is effective for a wide range of psychological disorders, and it is also effective as a life-affirming and inspirational perspective of self-determination. “a unique empirically based psychological intervention that uses acceptance and mindfulness strategies, together with commitment and behavior change strategies, to increase psychological flexibility.” The ACBS views ACT as a therapy based on the concept that suffering is a natural and inevitable condition for humans. We have an instinct to control our experiences, but this instinct does not always serve us.

The founder of ACT has also offered a definition of ACT in terms familiar to the psychology field: “a psychological intervention based on modern behavioral psychology, including **Relational Frame Theory**, that applies mindfulness and acceptance processes, and commitment and behavior change processes, to the creation of psychological flexibility” (Hayes, “The Six Core Processes of ACT”). To put it in less clinical terms, Dr. Russell Harris (2011) has defined ACT as “a mindfulness-based behavioral therapy that challenges the ground rules of most Western psychology.” Its unique goal is to help patients create a rich and meaningful life and develop mindfulness skills alongside the existence of pain and suffering.

CORE PROCESSES

Six core processes of ACT guide patients through therapy and provide a framework for developing psychological flexibility (Harris, 2011). These six core processes of ACT include the following:

- Acceptance;
- Cognitive Defusion;
- Being Present;
- Self as Context;
- Values;
- Committed Action.

Acceptance is an alternative to our instinct to avoid thinking about negative—or potentially negative—experiences. It is the active choice to allow unpleasant experiences to exist, without trying to deny or change them. Acceptance is not a goal of ACT, but a method of encouraging action that will

lead to positive results. Cognitive Defusion refers to the techniques intended to change how an individual reacts to their thoughts and feelings. Acceptance and Commitment Therapy does not intend to limit our exposure to negative experiences, but rather to face them and come out the other side with a decreased fixation on these experiences.

Being Present can be understood as the practice of being aware of the present moment, without judgment the experience. In other words, it involves experiencing what is happening without trying to predict or change the experience. Self as Context is the idea that an individual is not simply the sum of their experiences, thoughts, or emotions. The "self as context" process offers the alternative concept that there is a self outside of the current experience. We are not only what happens to us. We are the ones experiencing what happens to us. **Values** in this context are the qualities we choose to work towards in any given moment. We all hold values, consciously or unconsciously, that direct our steps. In ACT, we use tools that help us live our lives in accordance with the values that we hold dear.

Finally, ACT aims to help patients commit to actions that will assist in their long-term goals and live a life consistent with their values. Positive behavior changes cannot occur without awareness of how a given behavior affects us. ACT is not all that different from other behavioral-based therapies; it just emphasizes acceptance instead of avoidance, and in that way, differs from many other forms of therapy. This departure from most mainstream treatment can be traced back to the background of ACT's founder, Stephen C. Hayes.

THE ROLE OF ACT IN PSYCHOLOGY AND MINDFULNESS



Acceptance and Commitment Therapy is built on the Relational Frame Theory, a theory based on the idea the human ability to relate is the foundation of language and cognition. Relating involves noting the dimensions along which relation exists. For example, we may associate an apple with an orange, but our ability of relating allows us to understand that although they have a similar shape (round) and function (to be eaten), they have different colors and textures. Humans, unlike most other animals, have an uncanny ability to relate even neutral events, as well as seemingly unrelated words and ideas.

While this is an advantageous ability, it also facilitates negative thoughts and judgment about ourselves. If we can relate the word “cookie” to the experience of eating a cookie, then we can also relate the word “worthless” to feeling that we are worthless. Our ability to form relational networks (e.g., I relate the words “orange”, “apple”, and “pear” to the concept of “fruit”) can be a destructive ability when anxiety and depression impact us. For example, we might relate “worthless” to an ability to perform my job and, by extension, relate the word “worthless” to my life. ACT is built on **Relational Frame Theory**. We often form relational networks that are not complimentary or life-giving, but we can also change those relations when we apply mindfulness to accept our feelings and change how we react and relate to them, instead of trying to avoid them.

1. TRIGGERS, BEHAVIORS, AND PAYOFFS

This worksheet is a fillable matrix on page 6 with one column for writing down triggers (situations, thoughts, or feeling that immediately precede a certain behavior), behaviors (what you actually do), and payoffs (the immediate outcomes of the behavior that encourage the behavior to continue). This worksheet can help you or your clients identify self-defeating behaviors with the motivation behind them, which can be a first step to recognizing and modifying problematic behavior.

2. BULL’S EYE: CLARIFYING YOUR VALUES

Another worksheet presents the Values Bull’s Eye, or a set of concentric circles that are separated into four quadrants: work/education, leisure, personal growth/health, and relationships. The exercise involves placing an “X” on the circle that most closely represents how you feel in the present moment. The closer to the middle the X is, the more you feel you are behaving like the person you want to be. The further out the X is, the less you feel like the person you want to be.

3. THE ‘TRIFLEX’ PSYCHOLOGICAL FLEXIBILITY ASSESSMENT TOOL

The final pages in the PDF from ACT Mindfully help you estimate your psychological flexibility based on three factors:

1. Ability to open up
2. Ability to be present
3. Ability to do what matters

Here you will find a visual representation of psychological flexibility, an explanation of each of these three factors, and a method of estimating your abilities in these areas at this moment.

4. “THE HAPPINESS TRAP” WORKSHEET THE COST OF AVOIDANCE WORKSHEET

This worksheet presents four sentences for you to complete:

1. The thoughts I’d most like to get rid of are:
2. The feelings I’d most like to get rid of are:
3. The sensations I’d most like to get rid of are:
4. The memories I’d most like to get rid of are:

Next, you are asked to write a list of everything you have done to try to avoid or get rid of these thoughts, feelings, sensations, and memories. Distracting yourself from these, avoiding activities, or using substances to self-medicate are a few examples of avoidance techniques. Then you are asked to consider these questions for each item:

1. Did this action get rid of my painful thoughts and feelings in the long term?
2. Did it bring me closer to a rich, full, and meaningful life?
3. If the answer to question 2 is “no,” then what did this action cost me in terms of time, energy, money, health, relationships, and vitality?

This worksheet can help you become aware of your own avoidance strategies, and whether they are producing the results you want.

INFORMAL MINDFULNESS EXERCISES

This page introduces two simple mindfulness exercises for any typical day:

1. **Mindfulness in Your Morning Routine:** This exercise encourages you to notice the sensations while getting ready in the morning, such as the taste of your toothpaste, the smell of your face wash, or the feel of hot water on your body in the shower.
2. **Mindfulness of Domestic Chores:** This exercise is one you can practice by simply being aware of the sensations you experience as you sweep the floors, do a load of laundry, or make dinner. Since you “always” have to do the dishes, why not take the time to do it mindfully? It’s good for your brain. This worksheet allows space for you to imagine some informal mindfulness exercises to add to your day, such as while waiting in traffic or while walking from your car to your door. Maybe it’s as little as “no-phone” time while you grocery shop or wait in line.

VALUES ASSESSMENT RATING FORM

The Values Assessment Rating Form provides a matrix with 10 life domains (e.g., couples/intimate relationships, parenting, employment, etc.) and 4 columns to fill out:

- Valued direction (a brief summary of your goal for each domain)
- Importance of this value in your life
- Success in living this value
- Rank in order of importance you place on working on this domain right now

The Values Assessment Rating Form can help you identify where you are falling short of your goals and where you are meeting your goals, as well as aiding the prioritization of meeting these goals going forward.

GOAL SETTING WORKSHEET

This worksheet guides the reader through the values that underlie their goals and how to make sure these goals are SMART goals. SMART is an acronym for goals that are Specific, Meaningful, Adaptive, Realistic, and Time-bound. This activity will help you understand how to set goals that you can meet, rather than lofty ideas that are not backed by concrete actions.

WHAT TO DO IN A CRISIS

This informational page offers a practical and useful response for when you face a crisis.

This response is called STOP:

- Slow your breathing: enter into a quick and simple mindfulness practice.
- Take note: noticing what you are experiencing in the present moment.
- Open up: allow yourself to feel without judgment or avoidance.
- Pursue your values: decide what the best course of action is based on your most important values.

Here is a list of things to consider during this exercise:

1. Consider if you need assistance or support, and who could provide you with the assistance or support you need.
2. Think about whether you have experienced anything similar before, and how you responded to it then.
3. Consider ways to improve the situation, even in the smallest way, whether it's in the next few minutes or the next few days.
4. Be willing to practice acceptance if you cannot improve your situation, and commit to spending your time and energy in a constructive way.
5. Ask yourself what the best way is to deal with this situation or, as the metaphor goes, how to play the game with the cards you have been dealt.
6. Remember to practice self-compassion; if you need inspiration, imagine a friend or loved one was going through your experience right now, and tell yourself whatever you imagine telling them.

5. PSYCHOLOGICAL INFLEXIBILITY

For therapists and other mental health professionals from The Happiness Trap aligns with ACT principles as well. It provides questions for you to assess your clients for their psychological inflexibility. Psychological inflexibility is the extent to which anyone has trouble practicing the six core processes. The questions map to the opposite of the six core processes as follows:

- The dominance of the conceptualized past or future; limited self-knowledge (vs. acceptance)
- Fusion (vs. defusion)
- Experiential avoidance (vs. being present)
- Attachment to the conceptualized self (vs. self as context)
- Lack of values clarity/contact (vs. values)
- Unworkable action (vs. committed action)

This set of questions can be a great tool to help your clients ascertain where to focus their energy. This is a critical step to embracing their experiences and act according to their deepest values.

BEHAVIORAL THERAPY IS USED IN PSYCHOLOGY

In behavioral therapy, the goal is to reinforce desirable behaviors and eliminate unwanted or maladaptive ones. Behavioral therapy is rooted in the principles of behaviorism, a school of thought focused on the idea that we learn from our environment. The techniques used in this type of treatment are based on the theories of classical conditioning and operant conditioning. One important thing to note about the various behavioral therapies is that unlike some other types of therapy that are rooted in insight (such as psychoanalytic and humanistic therapies), behavioral therapy is action-based. Behavioral therapists are focused on using the same learning strategies that led to the formation of unwanted behaviors.

Because of this, behavioral therapy tends to be highly focused. The behavior itself is the problem and the goal is to teach clients new behaviors to minimize or eliminate the issue. Old learning led to the development of a problem, and so the idea is that new learning can fix it. There are three major areas that also draw on the strategies of behavioral therapy:

- **Cognitive-behavioral therapy** relies on behavioral techniques but adds a cognitive element, focusing on the problematic thoughts that lie behind behaviors.

- **Applied behavior analysis** uses operant conditioning to shape and modify problematic behaviors.
- **Social learning theory** centers on how people learn through observation. Observing others being rewarded or punished for their actions can lead to learning and behavior change.

Edward Thorndike was one of the first to refer to the idea of modifying behavior. Other early pioneers of behavior therapy included psychologists Joseph Wolpe and Hans Eysenck. Behaviorist B.F. Skinner's work had a major influence on the development of behavior therapy and his work introduced many of the concepts and techniques that are still in use today.

Later on, psychologists such as Aaron Beck and Albert Ellis began adding a cognitive element to behavioral strategies to form a treatment approach known as cognitive-behavioral therapy (CBT).

THE FOUNDATION OF BEHAVIORAL THERAPY

In order to understand how behavioral therapy works, let's start by exploring the two basic principles that contribute to behavioral therapy: Classical and operant conditioning.

- **Classical conditioning** involves forming associations between stimuli. Previously neutral stimuli are paired with a stimulus that naturally and automatically evokes a response. After repeated pairings, an association is formed and the previously neutral stimulus will come to evoke the response on its own.
- **Operant conditioning** focuses on how reinforcement and punishment can be utilized to either increase or decrease the frequency of a behavior. Behaviors followed by desirable consequences are more likely to occur again in the future, while those followed by negative consequences become less likely to occur.

BEHAVIOR THERAPY BASED ON CLASSICAL CONDITIONING

Classical conditioning is one way to alter behavior, and a number of techniques exist that can produce such change. Originally known as behavior modification, this type of therapy is often referred to today as applied behavior analysis. There are several different techniques and strategies used in this approach to therapy.

FLOODING

This process involves exposing people to fear-invoking objects or situations intensely and rapidly. It is often used to treat phobias. During the process, the individual is prevented from escaping or avoiding the situation. For example, flooding might be used to help a person who is suffering from an intense fear of dogs. At first, the client might be exposed to a small, friendly dog for an extended period of time during which they cannot leave. After repeated exposures to the dog during which nothing bad happens, the fear response begins to fade.

SYSTEMATIC DESENSITIZATION

In this technique, a client makes a list of fears and then learns to relax while concentrating on these fears. The use of this process began with psychologist John B. Watson and his famous Little Albert experiment in which he conditioned a young child to fear a white rat. Later, Mary Cover Jones replicated Watson's results and utilized counterconditioning techniques to desensitize and eliminate the fear response. Systematic desensitization is often used to treat phobias and other anxiety disorders. The process follows three basic steps.

1. First, the therapist teaches the client relaxation techniques.
2. Next, the individual creates a ranked list of fear-invoking situations.
3. Starting with the least fear-inducing item and working their way up to the most fear-inducing item,

the client confronts these fears under the guidance of the therapist while maintaining a relaxed state.

For example, an individual with a fear of the dark might start by looking at an image of a dark room, before moving on to thinking about being in a dark room, and then actually confronting his fear by sitting in a dark room. By pairing the old fear-producing stimulus with the newly learned relaxation behavior, the phobic response can be reduced or even eliminated.

AVERSION THERAPY

This process involves pairing an undesirable behavior with an aversive stimulus in the hope that the unwanted behavior will eventually be reduced. For example, someone suffering from alcoholism might take disulfiram, a drug which causes severe symptoms (such as headaches, nausea, anxiety, and vomiting) when combined with alcohol.

HOW AVERSION THERAPY WORKS TO FIX UNWANTED BEHAVIORS

Behavior Therapy Based on Operant Conditioning Many behavior techniques rely on the principles of operant conditioning, which means that they use reinforcement, punishment, shaping, modeling and related techniques to alter behavior. These methods have the benefit of being highly focused, which means that they can produce fast and effective results.

TOKEN ECONOMIES

This type of behavioral strategy relies on reinforcement to modify behavior. Clients are allowed to earn tokens that can be exchanged for special privileges or desired items. Parents and teachers often use token economies to reinforce good behavior. Kids earn tokens for engaging in preferred behaviors and may lose tokens for displaying undesirable behaviors. These tokens can then be traded for rewards such as candy, toys, or extra time playing with a favorite toy.

CONTINGENCY MANAGEMENT

This approach uses a formal written contract between a client and a therapist (or parent or teacher) that outlines behavior-change goals, reinforcements, rewards, and penalties. Contingency contracts can be very effective in producing behavior changes since the rules are spelled out clearly, preventing both parties from backing down on their promises.

MODELING

This technique involves learning through observation and modeling the behavior of others. The process is based on Albert Bandura's social learning theory, which emphasizes the social components of the learning process. Rather than relying simply on reinforcement or punishment, modeling allows individuals to learn new skills or acceptable behaviors by watching someone else perform those desired skills. In some cases, the therapist might model the desired behavior. In other instances, watching peers engage in sought-after behaviors can also be helpful.

EXTINCTION

Another way to produce behavior change is to stop reinforcing a behavior in order to eliminate the response. Time-outs are a perfect example of the extinction process. During a time-out, a person is removed from a situation that provides reinforcement. For example, a child who starts yelling or striking other children would be removed from the group and required to sit quietly in a place where there are no opportunities for attention and reinforcement. By taking away the attention that the child found rewarding, the unwanted behavior is eventually extinguished.

RATIONAL EMOTIVE BEHAVIOR THERAPY (REBT)

Rational emotive behavior therapy, also known as REBT, is a type of cognitive-behavioral therapy developed by psychologist Albert Ellis. REBT is focused on helping clients change irrational beliefs. History of Rational Emotive Behavior Therapy As a young man, Ellis found himself longing for companionship yet experienced a severe fear of talking to women. In order to tackle his fear, Ellis decided to perform an experiment. For a month, he visited a nearby park and forced himself to talk to 100 different women. Over time, Ellis found that his fear of speaking to women had diminished considerably. This experience served as a basis for developing his approach to therapy, combining behavioral strategies with assessing underlying thoughts and emotions. Ellis had trained as a clinical psychologist. As he treated patients, he became increasingly dissatisfied with the results offered by the traditional psychoanalytic approach to therapy. While his patients were able to become aware of their underlying problems, their behavior did not necessarily change. Simply becoming conscious of the problem was not enough, he concluded.

By the 1950s, Ellis had started experimenting with other types of psychotherapy. He was heavily influenced by philosophers and psychologists including Karen Horney and Alfred Adler, as well as the work of behavioral therapists. Ellis's goal was to develop what he viewed as an action-oriented approach to psychotherapy designed to produce results by helping clients manage emotions, cognitions, and behaviors. "People are not disturbed by things but rather by their view of things," Ellis said. The fundamental assertion of rational emotive behavior therapy (REBT) is that the way people feel is largely influenced by how they think.¹

When people hold irrational beliefs about themselves or the world, problems can result. The goal of REBT is to help people alter illogical beliefs and negative thinking patterns in order to overcome psychological problems and mental distress.²

Rational emotive behavior therapy was one of the very first types of cognitive therapies. Ellis first began developing REBT during the early 1950s and initially called his approach "rational therapy."¹ In 1959, the technique was renamed "rational emotive therapy," and then became "rational emotive behavior therapy" in 1992. Ellis continued to work on REBT until his death in 2007.

THE ABC MODEL

Ellis suggested that people mistakenly blame external events for unhappiness. He argued, however, that it is our interpretation of these events that truly lies at the heart of our psychological distress. To explain this process, Ellis developed what he referred to as the ABC Model.

- **A – Activating Event:** Something happens in the environment around you.
- **B – Beliefs:** You hold a belief about the event or situation.
- **C – Consequence:** You have an emotional response to your belief.¹

The events and situations that people encounter throughout life are only one piece of the puzzle. In order to understand the impact of such events, it is also essential to look at the beliefs people hold about these experiences as well as the emotions that arise as a result of those beliefs.

THE BASIC STEPS OF REBT

In order to better understand how REBT works, it is important to take a closer look at the therapeutic process itself. Identify Irrational Thought Patterns and Beliefs The very first step in the process is to identify the underlying, irrational thoughts, feelings, and beliefs that lead to psychological distress. In many cases, these irrational beliefs are reflected as absolutes, as in "I must," "I should," or "I cannot." According to Ellis, some of the most common irrational beliefs include:

- Feeling excessively upset over other people's mistakes or misconduct
- Believing that you must be 100% competent and successful in everything to be valued and worthwhile
- Believing that you will be happier if you avoid life's difficulties or challenges
- Feeling that you have no control over your own happiness, that your contentment and joy are dependent upon external forces¹

Holding such unyielding beliefs makes it almost impossible to respond to activating situations in a psychologically healthy way. Possessing such rigid expectations of ourselves and others only leads to disappointment, recrimination, regret, and anxiety.

CHALLENGE IRRATIONAL BELIEFS

Once these underlying feelings have been identified, the next step is to challenge the mistaken beliefs. In order to do this, the therapist disputes these beliefs using very direct and even confrontational methods. Ellis suggested that rather than simply being warm and supportive, therapists need to be blunt, honest, and logical in order to push people toward changing their thoughts and behaviors.

GAIN INSIGHT AND CHANGE BEHAVIOR

As you might imagine, REBT can be a daunting process for the client. Facing irrational thought patterns can be difficult, especially because accepting these beliefs as unhealthy is far from easy. Once the client has identified the problematic beliefs, the process of actually changing these thoughts can be even more challenging. While it is perfectly normal to feel upset when making a mistake, the goal of REBT is to help people respond rationally to such situations. When faced with this type of situation in the future, the emotionally healthy response would be to realize that it is not realistic to expect success in every endeavor. You made a mistake, but that's okay. Everyone makes mistakes. All you can do is learn from the situation and move on.

While REBT uses cognitive strategies, it focuses on emotions and behaviors as well.² In addition to identifying and disputing irrational beliefs, therapists and clients also work together to target the emotional responses that accompany problematic thoughts. Clients are encouraged to change unwanted behaviors using strategies such as meditation, journaling, and guided imagery.

COGNITIVE BEHAVIORAL THERAPY (CBT)

Cognitive behavioral therapy (CBT) is a type of psychotherapeutic treatment that helps people learn how to identify and change destructive or disturbing thought patterns that have a negative influence on behavior and emotions.¹

Cognitive behavioral therapy focuses on changing the automatic negative thoughts that can contribute to and worsen emotional difficulties, depression, and anxiety. These spontaneous negative thoughts have a detrimental influence on mood. Through CBT, these thoughts are identified, challenged, and replaced with more objective, realistic thoughts.

CBT is about more than identifying thought patterns; it is focused on using a wide range of strategies to help people overcome these thoughts. Such strategies may include journaling, role-playing, relaxation techniques, and mental distractions.

TYPES OF COGNITIVE BEHAVIORAL THERAPY

CBT encompasses a range of techniques and approaches that address thoughts, emotions, and behaviors. These can range from structured psychotherapies to self-help materials. There are a number of specific types of therapeutic approaches that involve CBT:

- **Cognitive therapy** centers on identifying and changing inaccurate or distorted thinking patterns, emotional responses, and behaviors.³
- **Dialectical behavior therapy (DBT)** addresses thoughts and behaviors while incorporating strategies such as emotional regulation and mindfulness.
- **Multimodal therapy** suggests that psychological issues must be treated by addressing seven different but interconnected modalities, which are behavior, affect, sensation, imagery, cognition, interpersonal factors, and drug/biological considerations.⁴
- **Rational emotive behavior therapy (REBT)** involves identifying irrational beliefs, actively challenging these beliefs, and finally learning to recognize and change these thought patterns.

While each type of cognitive behavioral therapy takes a different approach, all work to address the underlying thought patterns that contribute to psychological distress.

USES

Cognitive-behavior therapy can be effectively used as a short-term treatment centered on helping people with a very specific problem and teaching them to focus on present thoughts and beliefs.¹ CBT is used to treat a wide range of conditions including:

- Addictions
- Anger issues
- Anxiety²
- Bipolar disorder
- Depression
- Eating disorders
- Panic attacks
- Personality disorders
- Phobias⁵
- Problems with stress

Cognitive behavioral therapy is highly goal-oriented and focused, with the therapist taking a very active role. People work with their therapist toward mutually established goals. The process is explained in detail and people are often given homework to complete between sessions.

IMPACT

The underlying concept behind CBT is that thoughts and feelings play a fundamental role in behavior.¹ For example, a person who spends a lot of time thinking about plane crashes, runway accidents, and other air disasters may avoid air travel as a result. The goal of cognitive behavior therapy is to teach people that while they cannot control every aspect of the world around them, they can take control of how they interpret and deal with things in their environment. Cognitive behavior therapy has become increasingly popular in recent years with both mental health consumers and treatment professionals. Some reasons for this include:

- By becoming aware of the negative and often unrealistic thoughts that dampen their feelings and moods, people are able to start engaging in healthier thinking patterns.¹
- CBT can be an effective short-term treatment option.

- It can help people with certain types of emotional distress that don't require psychotropic medication.
 - It is empirically supported and has been shown to effectively help patients overcome a wide variety of maladaptive behaviors.¹
 - It is often more affordable than some other types of therapy.
- One of the greatest benefits of cognitive behavioral therapy is that it helps clients develop coping skills that can be useful both now and in the future.¹

CBT STRATEGIES

People often experience thoughts or feelings that reinforce or compound faulty beliefs. Such beliefs can result in problematic behaviors that can affect numerous life areas, including family, romantic relationships, work, and academics.

IDENTIFY NEGATIVE THOUGHTS

It is important to learn how thoughts, feelings, and situations can contribute to maladaptive behaviors.⁶ The process can be difficult, especially for people who struggle with introspection, but it can ultimately lead to self-discovery and insights that are an essential part of the treatment process.

PRACTICE NEW SKILLS

It is important to start practicing new skills that can then be put in to use in real-world situations. For example, a person with a substance use disorder might start practicing new coping skills and rehearsing ways to avoid or deal with social situations that could potentially trigger a relapse.

SET GOALS

Goal setting can be an important step in recovery from mental illness and helping you make changes to improve your health and life. During CBT, a therapist can help with goal-setting skills by teaching you how to identify your goal, distinguish between short- and long- term goals, set SMART (specific, measurable, attainable, relevant, time-based) goals, and focus on the process as much as the end outcome.

PROBLEM SOLVE

Learning problem solving skills can help you identify and solve problems that arise from life stressors, both big and small, and reduce the negative impact of psychological and physical illness. Problem solving in CBT often involves five steps: identifying a problem, generating a list of possible solutions, evaluating the strengths and weaknesses of each possible solution, choosing a solution to implement, and implementing the solution.⁷

SELF MONITOR

Also known as diary work, self-monitoring is an important part of CBT that involves tracking behaviors, symptoms, or experiences over time and sharing them with your therapist. Self-monitoring can help provide your therapist with the information needed to provide the best treatment. For example, for eating disorders, self- monitoring may involve keeping track of eating habits as well as any thoughts or feelings that went along with consuming that meal or snack.⁸

PROGRESS GRADUALLY

In most cases, CBT is a gradual process that helps a person take incremental steps towards a behavior change. For example, someone with social anxiety might start by simply imagining anxiety-provoking social situations. Next, they might start practicing conversations with friends, family, and acquaintances. By progressively working toward a larger goal, the process seems less daunting and

the goals easier to achieve.

HOW BEHAVIORAL THERAPY IS USED IN PSYCHOLOGY POTENTIAL PITFALLS

There are several challenges that people may run into during the course of cognitive behavioral therapy. Change Can Be Difficult Initially, some patients suggest that while they recognize that certain thoughts are not rational or healthy, simply becoming aware of these thoughts does not make it easy to alter them.

CBT IS VERY STRUCTURED

Cognitive behavioral therapy doesn't tend to focus on underlying unconscious resistances to change as much as other approaches such as psychoanalytic psychotherapy.⁹ It is often best-suited for clients who are more comfortable with a structured and focused approach in which the therapist often takes an instructional role.

PEOPLE MUST BE WILLING TO CHANGE

For cognitive behavioral therapy to be effective, the individual must be ready and willing to spend time and effort analyzing their thoughts and feelings. Such self-analysis and homework can be difficult, but it is a great way to learn more about how internal states impact outward behavior.

WHAT TO EXPECT DURING YOUR FIRST THERAPY SESSION HISTORY

CBT emerged during the 1960s and originated in the work of psychiatrist Aaron Beck, who noted that certain types of thinking contributed to emotional problems. Beck labeled these "automatic negative thoughts" and developed the process of cognitive therapy. Where earlier behavior therapies had focused almost exclusively on associations, reinforcements, and punishments to modify behavior, the cognitive approach addressed how thoughts and feelings affect behaviors. Since then, CBT has emerged as an effective first-line treatment for a wide range of disorders and conditions.

MINDFULNESS-BASED COGNITIVE THERAPY (MBCT) MINDFULNESS-BASED COGNITIVE THERAPY (MBCT)

combines cognitive behavioral techniques with mindfulness strategies in order to help individuals better understand and manage their thoughts and emotions in order to achieve relief from feelings of distress. Though originally developed to address recurrent depression, MBCT may be beneficial to people seeking treatment for a wide range of mental health concerns.

DEVELOPMENT OF MBCT

MBCT, which was developed by Zindel Segal, Mark Williams, and John Teasdale, is primarily derived from the earlier work of Teasdale, Jon Kabat-Zinn, and Phillip Barnard. The approach, which is still relatively new—the first clinical trial was published in 2000—incorporates principles from Kabat-Zinn's mindfulness-based stress reduction modality, an 8-week program designed to help people cope with the mental and physical effects of health concerns, and Bernard and Teasdale's ICS (interactive cognitive subsystems) model. ICS is based on the premise that the human mind possesses different modes for receiving and processing data, the two primary modes of which are the "being" mode and the "doing" mode. The model also suggests mental health may be dependent on a person's ability to detach from one mode and move between other modes, based on what is present in the environment. The MBCT program emphasizes the "being" mode, as this mode is believed to promote lasting emotional change, specifically for individuals experiencing recurrent depressive episodes.

HOW DOES MBCT WORK?

In this therapy approach, people can learn how to use cognitive methods and mindfulness meditation to interrupt the automatic processes often triggering depression. Low mood, negative thoughts, and certain body sensations such as weariness and sluggishness often occur together during an episode of depression. Even after the episode passes, connections may still exist between the different symptoms, and it is possible for a small negative stimulus to trigger a large downward spiral: Researchers have found when people with a history of depression experience a low mood, they may also experience negative memories and thoughts from the past, which may, in turn, lead to worry about the future and physical sensations such as fatigue.

MBCT helps participants learn how to recognize their sense of being and see themselves as separate from their thoughts and moods. This disconnect can allow people to become liberated from thought patterns in which the same negative messages may be replayed over and over. After developing an awareness of the separation between thoughts, emotions, and the self, people in treatment may find that while the self and the emotions may exist simultaneously, they do not have to exist within the same dimension. This insight can contribute to healing by helping individuals learn to interject positive thoughts into negative moods in order to disarm those negative moods. In general, MBCT attempts to give participants the necessary tools to combat depressive symptoms as they arise. People who learn these skills may then be able to revert to these methods in times of distress or when faced with potentially overwhelming situations.

TECHNIQUES USED IN MBCT

This therapy is delivered as a weekly group treatment program over the course of eight weeks. Each weekly session lasts for two hours, but completing a 45-minute homework assignment six days a week is also required. For homework, participants listen to audio recordings and practice mindfulness meditation. People in treatment are also introduced to a technique called the three-minute breathing space. This technique encourages participants to incorporate formal practice into their day-to-day life.

Though there is currently no consensus as to how mindfulness should be defined, the basic concept refers to the practice of developing, in a non-judgmental manner, a deeper awareness of what is happening within one's mind and body from moment to moment. Certain meditation techniques—breathing meditations, sitting meditations, body scan meditations, walking meditations, and yoga—may help to improve a person's mindfulness. In MBCT, individuals in treatment are also taught cognitive concepts such as the association between thoughts and feelings, and they also often have the opportunity to develop a deeper understanding of depression.

ISSUES TREATED WITH MBCT

Mindfulness is believed to promote good health, and many studies have associated mindfulness with decreases in depression and anxiety. Thus, many mental health professionals have incorporated mindfulness-promoting activities into therapy sessions, and these activities have been shown to help reduce symptoms of depression, decrease stress, and improve emotional control, regardless of the specific issues being addressed. MBCT in particular may be used as a primary treatment modality or in conjunction with other forms of therapy. Individuals experiencing certain medical concerns may also obtain benefit from MBCT: In a 2013 study of 33 women with fibromyalgia,

researchers found that those who were treated with MBCT demonstrated a significantly reduced impact of fibromyalgia, a significant decrease in depressive symptoms, and a slight decrease in the intensity of bodily pain when compared to those who did not receive MBCT. Researchers have also shown individuals with cancer, diabetes, chronic pain, and epilepsy who incorporate MBCT into treatment plans may see improvement in well-being. Over the past 15 years, the results of numerous randomized controlled trials have demonstrated that MBCT can be a powerful intervention for people who have experienced clinical depression three or more times. Evidence indicates MBCT may reduce the rate of relapse for individuals with recurrent depression by 50%. MBCT has also been applied to mood and anxiety concerns other than depression, with reported success. A 2014 review of the usefulness of MBCT as a treatment modality for several health conditions found the approach may be effective when addressing issues such as depressive relapse, current depression, residual depression, bipolar, anxiety, food and eating issues, and psychosis, among others.

TRAINING AND CERTIFICATION

Certification in MBCT is provided by a number of approved institutions around the world, including the UCSD Mindfulness- Based Professional Training Institute (United States), the Oxford Mindfulness Centre (England), the University of Geneva (Switzerland), The Centre for Mindfulness Studies (Canada), and Bangor University (Wales). Therapists who are interested in gaining certification as a teacher of MBCT are required to fulfill two training phases: teacher qualification and teacher certification.

The teacher qualification phase provides applicants with the necessary foundation for teaching MBCT. It consists of six steps:

- Satisfy the prerequisites for a five-day MBCT teacher training retreat
- Attend and participate in the retreat or acquire equivalent training
- Successfully complete either the MindfulNoggin Online MBCT course or the Participant Observer in Live MBCT course
- Apply for teacher-in-training status after successful completion of the program
- Receive a minimum of 20 hours of mentorship while teaching at least two MBCT courses, where each course lasts for eight weeks
- Submit application for teacher qualification

Once teacher qualification status has been achieved, applicants may present themselves as a “qualified teacher of MBCT” and begin phase two of the training process if they wish to pursue certification. Teacher certification involves the following five steps:

- Obtain teacher qualification
- Teach at least three additional eight-week MBCT courses after receiving teacher qualification
- Attend and complete the Advanced Teacher Training Intensive (ATTI)
- Receive a minimum of 10 hours of mentorship while teaching an MBCT course
- Submit application for teacher certification

LIMITATIONS AND CONCERNS

The effectiveness of mindfulness based cognitive therapy is supported by considerable empirical evidence and has, according to research, generally produced positive results for people in treatment. However, because it is a relatively new treatment modality, the long-term benefits of this approach may not yet be fully determinable. A growing body of empirical evidence supports the approach, but

further research may provide greater support for its effectiveness when treating bipolar, eating issues, psychosis, and other conditions. Several critics have highlighted methodological shortcomings in some MBCT studies such as small sample size, a lack of control groups, and a lack of randomization, all of which have potential to affect the results obtained. More rigorous studies are needed to evaluate whether MBCT is more effective than other, more widely practiced forms of therapy, such as cognitive behavioral therapy.

PLAY THERAPY

Play therapy is a form of therapy primarily geared toward children. In this form of therapy, a therapist encourages a child to explore life events that may have an effect on current circumstances, in a manner and pace of the child's choosing, primarily through play but also through language.

Play therapy, can help individuals communicate, explore repressed thoughts and emotions, address unresolved trauma, and experience personal growth and is widely viewed as an important, effective, and developmentally appropriate mental health treatment.

HISTORY AND DEVELOPMENT OF PLAY THERAPY

Though some of the earliest theories and methods mentioned below are no longer practiced and may not be acceptable based on current research and ethical standards, they did play a part in advancing play therapy to the extent that it is now regarded as an established therapeutic approach. Some key individuals in the development of this therapy and their contributions to the field include:

- **Hermine Hug-Hellmuth**, who is widely regarded as the world's first psychoanalyst to specialize in treating children and the first person to use play as a form of therapy. In 1921, she introduced a formal play therapy process by providing the children in her care with the necessary materials to express themselves and advocated the use of play to analyze children.
- **Melanie Klein**, who used play as an analytic tool as well as a means to attract the children she worked with to therapy. Klein believed play provided insight into a child's unconscious.
- **David Levy**, who developed a therapeutic approach called "release therapy" in 1938. This was a structured approach that encouraged a traumatized child to engage in free play. The therapist then gradually introduced materials related to the traumatic event, allowing the child to re-experience the stressful event and release any unresolved emotions or actions.
- **Joseph Soloman**, who used an approach called "active play" to assist children who displayed impulsivity and a tendency to act out. The approach was based on Soloman's belief that expressing emotions such as fear and anger in play would result in more socially acceptable behavior.
- **Anna Freud**, who presented theoretical arguments for the use of play as a means to build a positive relationship between the child and therapist, thus allowing the therapist better access to a child's inner thoughts and emotions.
- **Carl Rogers**, who developed person-centered therapy during the 1940s and 1950s. This type of therapy emphasizes the importance of genuineness, trust, and acceptance in the therapeutic relationship.
- **Virginia Axline**, who developed nondirective play therapy by modifying Rogers' approach into a play therapy technique that was more appropriate for children.
- **Roger Phillips**, who posited the idea to combine cognitive therapy and play therapy in the early 1980s. Cognitive behavioral play therapy has been used to treat children as young as two years old.

THE NEUROSCIENCE BEHIND THE IMPORTANCE OF PLAY

Though play is often regarded simply as a way for individuals, particularly children, to relax, scientific

research has proven that play is a crucial factor in healthy child development. Studies show that newborn babies possess billions of brain cells; however, these young cells lack the complex neural interconnectivity that is characteristic of a mature, fully-functional human brain. Neuroscience has revealed that the majority of the brain's growth takes place within the first five years of a child's life, and the act of play contributes significantly toward the development of interconnections between neurons. These neural links play a major role in key areas of the child's life, such as learning, social development, emotional development, and memory.

Play is considered to be especially important for the healthy development of children who have experienced stressful events or past trauma. While the effects of trauma tend to reside in the nonverbal areas of the brain—the hippocampus, amygdala, thalamus, and brain stem—a person's capacity to communicate and process adverse issues resides in the brain's frontal lobes. As a result, children affected by trauma may find it difficult to let other people know that they need help. The physical and role-playing activities associated with play therapy have proven instrumental in helping to move traumatic memories and sensations from the nonverbal brain areas to the frontal lobes.

HOW DOES PLAY THERAPY WORK?

When children are experiencing adverse personal issues they will often act out or engage in inappropriate behavior. Parents may be eager to help but may find it difficult or impossible to offer effective aid if a child is unable or unwilling to discuss the problem. Play therapy is thought to be one of the most beneficial means of helping children who are experiencing emotional or behavioral challenges. Though the approach may benefit people of all ages, it is specially designed to treat children under 12. A typical session may last for 30-45 minutes and may be conducted with one child only or in groups.

During treatment, the therapist creates a comfortable, safe environment in which the child is allowed to play with as few limits as possible. This counseling space is often referred to as a playroom, and it comes equipped with a selection of specifically chosen toys that are meant to encourage the child to express his or her feelings and develop healthier behaviors. The child's interactions with these toys essentially serve as the child's symbolic words. This allows the therapist to learn about specific thoughts and emotions that a child may find difficult or impossible to express verbally. Toys used in therapy may include a sandbox with associated miniature figurines, art materials, Legos or other construction toys, costumes or other clothing, stuffed animals, dolls, a dollhouse with miniature furniture, puppets, indoor sports equipment, and other indoor games. The therapist may also incorporate the use of tools and techniques such as clay, therapeutic storytelling, music, dance and movement, drama/role play, and creative visualization.

At first children in therapy are generally allowed to play as they wish. As treatment progresses, the therapist may begin to introduce specific items or play activities which are related to the issues the child is facing. Play therapy may benefit the child in a variety of ways such as encouraging creativity, promoting healing from traumatic events, facilitating the expression of emotions, encouraging the development of positive decision-making skills, introducing new ways of thinking and behaving, learning problem-solving skills, developing better social skills, and facilitating the communication of personal problems or concerns.

Play therapy may be nondirective or directive. Nondirective play therapy is grounded in the idea that if allowed optimal therapeutic conditions and the freedom to play, children in therapy will be able to resolve issues on their own. This approach is viewed as non-intrusive since there is minimal

instruction from the therapist regarding how a child should engage in play. Directed play therapy involves much greater input from the therapist and is based on the belief that faster therapeutic results may be obtained than in nondirective play therapy sessions.

PLAY THERAPY FOR ADULTS

Play therapy can also be used to treat issues faced by teenagers and adults. By adulthood, most people have lost their ability to playfully explore themselves. Play therapists are trained to help adolescents, adults, and even the elderly relearn the values of play. Playful exploration has been proven to enhance both cognitive and physical behaviors, and there is a significant amount of research from the fields of neurophysiology and molecular biology that supports play therapy as a valid therapeutic technique for those past childhood. A growing number of organizations and experts are dedicated to play research and advocacy, believing that play is important for people of all ages.

Play has been shown to optimize learning, enhance relationships, and improve health and well-being. Adults and children engaged in a therapeutic alliance that focuses on play have an opportunity to choose from a variety of modalities such as movement (body play), sand play, dream play, nature play, social play, pretend (fantasy) play, creative play, storytelling, and vocal play. Play therapy may be used to address a variety of health challenges experienced by adults, especially if incorporated with other treatment modalities. One of the most significant benefits is that play can provide a comfortable and safe environment that may prompt an adult to approach more serious issues. Play therapy can be used to treat (in children or adults):

- Dementia
- Grief and loss
- Posttraumatic stress
- Obsessions and compulsions
- Attention deficit hyperactivity
- Mood issues
- Anxiety
- Depression
- Developmental issues
- Arrested emotional development

GUIDELINES FOR EFFECTIVE PLAY THERAPY

Play therapy has proven to be an effective therapeutic approach for people from all age groups, though minors respond particularly well to this type of treatment. Therapists may employ several general guidelines and practices in treatment in order to foster the greatest benefits for people in their care.

When working with a child, a therapist may provide adjunctive therapy for adults who play key roles in the child's life. Throughout therapy, the therapist will typically place emphasis on the promotion of mental health and psychosocial development, explaining treatment plans to the person receiving treatment and a child's legal guardians, if necessary. Therapists may also coordinate treatment with doctors or other health care professionals to ensure that a child's welfare remains the treatment priority. If inappropriately touched by a child in treatment, the therapist may find it best to explain that it is important that each person's body is respected, document the event, then discuss the situation with the child's legal guardians at the earliest opportunity. A therapist may also find it necessary to make arrangements to prevent the child, or any person they are treating, from feeling abandoned, should there be a break in treatment.

TRAINING FOR PLAY THERAPISTS

Mental health professionals who seek specialized training and experience in play therapy may earn their credentials from the Association for Play Therapy (APT). The APT is a nationally recognized professional institution which aims to further the play therapy modality and advance the expertise and knowledge of mental health professionals involved in the clinical practice, instruction, and supervision of play therapy. The APT offers two standard credentials: the Registered Play Therapist™ (RPT) and the Registered Play Therapist-Supervisor™ (RPT-S).

APPLICANTS DESIRING TO BECOME A REGISTERED PLAY THERAPIST™ MUST:

- Possess an active individual state license which allows him or her to independently provide clinical mental health services.
- Have earned a master's degree or higher in a mental health field, with special emphasis on areas such as child development, psychotherapy, theories of personality, ethics, or child and adolescent psychopathology.
- Have two years of general clinical experience (as required for state licensure) and 2000 hours of general mental health clinical experience.
- Complete 150 hours of play therapy instruction from APT-approved providers or tertiary level academic institutions.

To become a Registered Play Therapist-Supervisor™, an applicant must also have 500 hours of experience in play therapy, conducted under supervision, plus an additional 50 hours of field-specific supervision. The Registered Play Therapist™ (RPT) credential lasts for one year, and it must be renewed annually to maintain active status. To qualify for renewal, the applicant must have a current and active state license to offer clinical mental health services and follow a continuing education cycle by receiving 18 hours of instruction specific to play therapy from a tertiary level academic institution or an APT-approved provider every 36 months.

POSITIVE PSYCHOTHERAPY (PPT)

Positive Psychotherapy (PPT) is a relatively new therapeutic approach, influenced by both the humanistic and psychodynamic approaches towards diagnosis and treatment. Its core focus is on moving away from what's 'wrong' or the negative aspects of an individual, and instead move towards what's good and positive. Seligman, Rashid, and Parks (2006) offer the following definition for PPT concerning depression: Positive psychotherapy (PPT) contrasts with **standard interventions** for depression by increasing positive emotion, engagement, and meaning rather than directly targeting depressive symptoms.

PPT often uses a range of interdisciplinary approaches of **psychotherapy**, including the use of multicultural stories, ideas, and metaphors to help individuals create a new view of their mental health in positive ways. Therapists using PPT often invite the individual to place themselves in the stories used, so they become active in their healing process in an empowered way, and in so doing, become the 'therapist' of their own recovery. While the emphasis is on positivity and positive outcomes, the overall theory of PPT also asserts that three core principles need to be addressed to allow this to happen:

1. The Principle of Hope: This principle encourages the individual to focus on the overall positivity of humanity, and negative experiences are to be seen as having a higher purpose with a positive reframing. Any disruptions to a sense of well-being are encouraged to be explored and reframed as signals that there is an imbalance that requires addressing.
 2. The Principle of Balance: This principle examines how we experience discontent and the coping methods we might use to address this. According to PPT, negative symptoms arise when these coping methods aren't working, and our areas of life are out of balance, with discontent impacting how we think and feel.
1. Pesechskian (1979) ascertained there are four key areas where we will experience imbalance: body/sense, achievement/activities, contact/environment, and fantasy/future. These are the areas PPT focuses on when exploring and addressing the principle of balance.
 2. The Principle of Consultation: This principle sets out the five stages of therapy that must be worked through to address any issues that arise in the above two principles, to achieve a positive outcome:
 1. Observation – where the individual provides an account of the issues, challenges, or situations that are upsetting them and those that are making them happy.
 2. Inventory — where the therapist and individual work together to explore and highlight the correlation between negative feelings/symptoms and the individual's true capabilities.
 3. Situational Support — where the individual is asked to focus on their positive traits and those of the people around them who significantly offer them support.
 4. Verbalization — where the individual is encouraged to verbally discuss and talk openly about any negative feelings, challenges, or symptoms.
 5. Development of Goals — where the individual is invited to turn their focus to the future, setting positive goals, and envisioning the positive feelings they want to cultivate, as well as connecting these with their unique strengths.

Another core component of PPT is the emphasis it places on core capabilities. According to PPT theory, everyone — regardless of gender, age, class, ethnicity, or preconceived ideas of their mental health — has two core capabilities:

1. The Capability of Perception: Our ability to draw connections between the different areas of life with more significant reasons behind the meaning of not only our own existence but the existence of everything around us.
2. The Capability of Love: Our ability to develop emotionally and develop interpersonal relationships. Pesechskian (1979) concluded that these two core capabilities are what lay behind our further abilities. PPT seeks to explore an individual's two core capabilities to understand better and, where appropriate, address imbalances to create additional positive outcomes.

Due to its openness around utilizing multicultural stories and ideas, one criticism of PPT is that it does not work as well in westernized society. This is because there is often a focus on individualism and independence, and by not allowing enough exploration of negative or traumatic experiences can be seen to lead to trivializing these experiences. Overall, PPT has been received very positively in the positive psychology community, with some wonderful outcomes and results.

NOSSRAT PESECHKIAN'S WORK AND A BRIEF HISTORY OF POSITIVE PSYCHOTHERAPY

Although Seligman is often attributed as being one of the co-founders of PPT, similar therapies

focusing on happiness or **quality of life** over emphasis on negatively experienced symptoms pre-date Seligman's work. Most notably is Nossrat Peseschkian, an Iranian-born psychotherapist, psychiatrist, and neurologist, who set up practice in Germany in the 1960s.

Influenced by humanist psychology, meetings with multiple influential psychologists, and spiritual practitioners, as well as his own experiences working with clients across more than twenty cultures, Peseschkian wanted to create an integrative therapy model that focused on positive experiences alongside being culturally sensitive. In the 1970s, Peseschkian began to deliver lectures around his therapy model and published four books based on PPT during this time. In the early 1970s, Peseschkian referred to his model as 'Differentiation Analysis.'

In 1977 he published his first book, 'Positive Psychotherapy,' and in so doing renamed his approach. During this time, PPT gained further acknowledgment with structured training and the founding of the Psychotherapeutic Group of Wiesbaden, The German Association for Positive Psychotherapy, and the Journal of Positive Psychotherapy in 1979. Through the 1980s and 1990s, PPT grew in its structure, uses, and acknowledgment as a prevalent theory outside of Germany, with Peseschkian traveling to more than 60 countries to deliver talks and lectures, and opening more than 30 centers. He also continued to publish books, and the 'Wiesbaden Inventory for Positive Psychotherapy and Family Therapy' was also published in 1988.

In 1994 the International Center for Positive Psychotherapy opened its doors, later becoming the World Association for Positive Psychotherapy in 2008. The first effectiveness study of PPT was conducted between 1995 and 1997, concluding that PPT demonstrated a strong therapeutic influence for a range of mental health diagnoses. Peseschkian wasn't the only one to recognize the benefits of focusing on the positive in therapy. During this time, several other psychologists also explored similar concepts.

Fordyce (1977) developed a 'Happiness' intervention and worked with students to help them utilize a series of 14 tactics aimed at assisting them in developing a better sense of well-being and happiness. These tactics came with detailed instructions and included things such as socializing, engaging in meaningful work, deepening close relationships with loved ones, and managing expectations. Fordyce found that those students who used the tactics and instructions reported being happier and showed fewer depressive symptoms over a control group.

Fava (1999) and Fava and Ruini (2003) developed their Well-Being Therapy (WBT), which places a focus on building personal mastery across different areas of life, including environmental, personal growth, life purpose, self-acceptance and positive relationships with others. Alongside Peseschkian's approach, Seligman has been responsible for developing the PPT model alongside more contemporary notions of positive psychology. Where Peseschkian's model is more integrative, cross-disciplinary, and focuses on multi-cultural concepts, more modern PPT practice is primarily based on Seligman's notion of happiness and well-being overall (Seligman, 2002). It's important to acknowledge that while similar, there are some slight differences between the two approaches.

FIVE BENEFITS OF POSITIVE PSYCHOTHERAPY

The primary goal of PPT is to help individuals better understand the skills and capabilities they have, and ones they might need to develop, to achieve a greater sense of inner balance. This is achieved by exploring innate resources — physical, emotional, spiritual, and cognitive — the individual already has and may need help tapping into in positive ways. There are many **benefits of positive psychotherapy** and in approaching our mental health in this way. Below I've explored the top five in

more detail:

1. EMPOWERS THE INDIVIDUAL

As PPT places a strong emphasis on helping the individual to examine their strengths, skills, and capabilities in a positively reframed manner, it increases their sense of empowerment and control over the different areas of their life, as well as their capacity to handle challenges and negative experiences (Rashid, 2014). The therapist's role in the client-therapist relationship is to encourage the individual to uncover things on their own terms. It places the good with the bad, helping individuals find the balance they need to accept all parts of themselves. This integration of skills, weaknesses, virtues, vulnerabilities, and strengths helps to build a more balanced perspective rather than reducing individuals to merely their symptoms or what challenges them.

2. POSITIVE REFRAMING OF NEGATIVE SYMPTOMS AND A FOCUS ON BALANCE

A great benefit of PPT is how it brings the negative in line with the positive. Although it might sound like the model only focuses on positive and dismisses the negative, it focuses more on bringing the two into alignment and balance. This approach helps individuals to better understand their strengths and skills, where they might have gaps and how these can perpetuate negative feelings or imbalances if not addressed appropriately.

3. ACKNOWLEDGES AND SUPPORTS CULTURAL TRANSITIONS AND DIFFERENCES

Because PPT encourages empowerment on the individual, it can help them to feel more in control across different areas of their life, even when it might feel that external circumstances are taking over. This has proven especially beneficial for individuals experiencing conflict in multicultural environments or relationships. Bontcheva and Huysse-Gaytandjieva (2013) explored migration and the challenges faced by those who had moved to new countries and cultures. They found that those who applied positive psychotherapy techniques were better able to overcome these challenges, with two-thirds of participants reporting depressive symptoms were entirely resolved.

4. BETTER MANAGEMENT OF EXPECTATIONS AND THERAPY OUTCOMES

Another important benefit of PPT is how it acknowledges the importance of the client-therapist relationship, and how the self-directed techniques used are instrumental in helping individuals get the most out of the therapy (Rashid and Seligman, 2018). With a greater sense of awareness for personal capabilities, strengths, and skills, the individual can understand their mental health journey better, and how they can act to improve this. As a result, therapy expectations are better managed, and individuals see the outcome of PPT as being about more than merely eliminating negative symptoms or feelings.

5. PROVEN TO HELP A RANGE OF MENTAL HEALTH CONDITIONS

With its focus on strengths and cultivation of the positive elements of life, PPT has shown to be highly beneficial across a range of mental health conditions including psychosis (Schrank et al., 2016), suicidal ideation (Johnson et al., 2010), depression (Seligman, Rashid, and Parks, 2006, Carver, Scheier and Segerstrom, 2010) and borderline personality disorder (Uliaszek, 2016).

HOW DOES POSITIVE PSYCHOTHERAPY RELATE TO POSITIVE PSYCHOLOGY?

While the two approaches sound very similar, there are some cross-overs in how each tackles individual experiences within therapy. Positive psychology is popularly attributed as being the brain-child of Martin Seligman, developed in 1998, where positive psychotherapy is more commonly attributed to Nossrat Pesechkian, first developed in 1968. Both approaches draw influences from humanistic and psychodynamic models of psychology.

WHAT ARE THE SIMILARITIES AND DIFFERENCES BETWEEN THE TWO?

Both approaches place emphasis on personal development and the importance of tapping into innate resources and strengths to overcome challenges and negatively experience emotions. Both also work on the assumption that we are all inherently good, and need to work hard to uncover when external influences prevent us from becoming the best versions of ourselves. There are also some slightly nuanced, but very essential differences:

Positive Psychotherapy	Positive Psychology
Believes all negative experiences can be challenged and reframed in a positive way, as they are essentially opportunities for further growth.	Acknowledges negative experiences and emotions but doesn't necessarily incorporate them in the same way.
Focuses more on multi-cultural experiences and the challenges that individuals can face across different cultures — both similar and different.	Has a more Westernised approach to therapy and an individual's experiences.
Influenced equally by humanistic and psychodynamic approaches and seeks to integrate the best of both.	Less focused on humanistic models and therapies and less integrative of other psychological approaches.

Seligman has spoken extensively about both approaches, and how the two are related in specific ways, identifying that positive psychotherapy helps individuals to move past the process of suffering to uncover deeper insights about their wellbeing (Seligman and Wyatt, 2008). While acknowledging negative or traumatic experiences is a core component of many therapeutic approaches, Seligman has acknowledged that positive psychotherapy does place a more positive focus when going through this process.

3 POSITIVE PSYCHOTHERAPY INTERVENTIONS



As touched on briefly, positive psychotherapy has proven beneficial in a range of clinical settings addressing various mental health concerns. The interventions utilized in PPT are varied, and will often rely on what the individual expresses in the therapy sessions for the therapist to select the ones most appropriate. A very distinct component of the interventions used in PPT is how it incorporates imagination and intuition as part of the therapeutic process. Storytelling is another key way PPT encourages individuals to engage with their therapy journey, and this idea of building the self into the stories helps individuals to better articulate their journeys, experiences, challenges, and desires. Through this process, PPT therapists can begin to introduce adjustments or dive deeper into sensitive topics without seeming to ‘attack’ the individual.

Therapists can also help those they work with to reframe their experiences and symptoms in positive ways, and then proactively work on rebuilding them positively within their lives (creating better balance). Once individuals can accept all aspects of themselves and begin to see negative experiences in a positive light, they generally no longer repeat those negative experiences. The specific interventions used in this process have a focus on empowering the individual and providing them with the tools and resources to face up to negative or traumatic experiences, cultivate resilience, and develop better emotional functioning.

These include:

1. PRACTICING GRATITUDE

Gratitude is a strong cognitive state, generally associated with the idea that you have achieved a personal benefit that wasn't initially intentionally sought after (Emmons and McCullough, 2003). Feeling gratitude can have a strong re-energizing impact on our emotional well-being and has been shown to lead to greater feelings of happiness and healing. In therapy, practicing gratitude can begin with making the time to acknowledge all the small everyday things that occur and for which we can feel grateful. Gratitude journals, **worksheets**, and resources are widely available, and it's a popular intervention in PPT to help show individuals everything they have in their lives to feel grateful for — something many of us often forgets to acknowledge.

2. PRACTICING FORGIVENESS

Many therapists agree that forgiveness — for the self, others, and general experiences — is

a vital part of healing and promoting a greater sense of well-being. Worthington (2003) proposed two core types of forgiveness within clinical/therapy settings:

1. Decisional Forgiveness: Where the individual states a behavioral intent to forgive.
2. Emotional Forgiveness: Where the individual has true emotional acceptance of the situation, experience, or personal feelings that requires forgiveness.

We can utilize decisional forgiveness but still feel emotionally upset, which can lead to further unforgiveness and negative symptoms related to our mental health (Worthington and Scherer, 2007). PPT utilizes the practice of forgiveness as a key intervention, particularly focusing on emotional forgiveness so that individuals feel a complete sense of healing when moving past negative symptoms.

3. PRACTICING EMPATHY

The PPT approach teaches that all humans are inherently good, and innately want to live meaningful lives and have enriching relationships. Empathy is a core component of this, but it has been shown to routinely fail as an innate ability in several challenging or conflicting scenarios (Zaki & Cikara, 2015).

Most empathy-related interventions build on the notion that we are all capable of empathy, and these interventions support individuals to focus instead on developing their ability to tap into empathy and target it in specific ways. One approach utilized by PPT is using the storytelling method to ask individuals to put themselves in another’s shoes and describe how they might feel, react or respond to challenging situations, as well as how they might react to positive situations.

THE POSITIVE PSYCHOTHERAPY MODEL (INC. TABLE WITH BRIEF SESSION DESCRIPTIONS)

Similar to other therapy models, the PPT model focuses on a series of sessions aimed at uncovering ideas, desires, vulnerabilities and strengths, and working through them to reach positive reframing and overall balance between the positive and the negative.

The below outline of sessions is a brief overview of the PPT model. Some versions of this relate more to the approach developed by Pesechian, and as with all therapy models, there can be slight nuances depending on the therapist and where they practice.

Session and Topic	Description
Orientation to PPT; Current Positive Resources	Psychological distress is discussed as a lack of positive resources, such as positive emotions, relationships, meaning, and accomplishment. To explore this, the therapist might use an exercise that encourages the individual to write a one-page, real-life story that called for the best in them and has a positive ending.
Individual Character Strengths	In this session, individual character strengths are explored, and the concept of engagement and flow is introduced. To begin exploring individual character strengths, the individual may be asked to identify what they believe are their signature strengths both in the session and through an online self-report. They may also ask two other close persons to rate their signature strengths.
Signature Strengths & Positive	Following on from the last session, signature strengths are discussed in more detail.

Emotions	As an exercise, the therapist may ask the individual to compile a signature strengths profile, which could include setting SMART (specific, measurable, achievable, realistic, and timely) goals.
Good vs. Bad Experiences, Symptoms or Memories	The concept of how negative experiences and symptoms can be perpetuated is discussed in alignment with positive experiences.
	The therapist might use an exercise that asks the individual to explore a memory or experience that elicited feelings of anger, bitterness, or resentment and how these feelings further perpetuated the negative experience.
Forgiveness	Forgiveness is explored as a resource to reframe negative symptoms and feelings into more positive emotions. The therapist might use a letter-writing exercise that asks the participant to remember a negative experience and to write out a letter of forgiveness towards the perceived transgressor/s of the scenario — themselves included.
Gratitude	Alongside forgiveness, gratitude is explored as a resource for generating better balance, and to view individual circumstances more positively. The role of positive and negative memories, feelings, and symptoms are discussed with an emphasis on gratitude for all the lessons both of these states have allowed for. The therapist might use gratitude journaling as an exercise to help build
	more focus and awareness of all the things for which the individual is grateful.
Mid-Therapy Check	At this point, the therapist may follow up on any at-home tasks related to the forgiveness and gratitude sessions, and to revisit any of the previous sessions that may feel unresolved. This is also the opportunity for the individual to discuss their perceived gains or hurdles they might be experiencing so far as an outcome of these sessions. As an exercise, the therapist may seek to explore different ways the individual can overcome any of the hurdles, utilizing their signature strengths uncovered previously.
Satisficing vs. Maximizing	The therapist may now introduce the two concepts of satisficing (mainly, being 'good enough') and maximizing. The individual may be asked to explore the different ways in life they have not felt 'good enough' and to tell the story of one experience where they did feel good enough, and one where they did not. Again, these can be explored regarding
	the individual's signature strengths.
Hope and Optimism	The additional concepts of optimism and hope are explored. As an exercise, the therapist may ask the individual to think about a time when they may have felt they lost out on something, only to discover it opened up new opportunities.
Positive Communication	Various interventions that involved developing positive communication, such as Active-constructive, are explored and referenced in

	association to the individual's signature strengths.
Signature Strengths of Others	The importance of recognizing, acknowledging, and associating with the signature strengths of the key people the individual has close relationships with is explored. As an exercise, the therapist may ask the individual to draw up a 'Family Strengths Tree' where the individual asks their significant relationships to complete an online self-report strengths test and identify their signature
	strengths. These can then be discussed in the session.
Savoring	The concept of savoring is explored, as well as some of the techniques and strategies that can be used to prevent adaptation, along with techniques and strategies to safeguard against adaptation.
Gift of Time and Positive Legacy	The benefits of kindness, sharing, and helping others are explored and discussed in alignment with therapeutic outcomes. As an exercise, the therapist might ask the individual to make plans for how they might give the gift of their time utilizing their signature strengths.
The Full Life	In the final session, 'The Full Life' is discussed in terms of what the individual feels they have that leads to this. Therapeutic gains are discussed, focusing on positive emotions, engagement, and meaning. How to keep this momentum going is

also discussed, and ways of doing this are devised with the individual taking the lead and considering their signature strengths to achieve this. As mentioned, the above is a brief overview of the sessions that can be included in the PPT model. If you'd like to find out more about the model and detailed descriptions of the sessions, as well as interventions and **positive psychotherapy exercises** that can be used within them, you can find more information through the **Positive Psychology Toolkit**.

POSITIVE PSYCHOTHERAPY RESOURCES

As a psychological approach, PPT has grown considerably in popularity over the past decade or so. There is now a wide range of resources, tools, books, and other media to help you either as a therapist or an individual better understand this model and utilize it in productive ways.

TRANSACTIONAL ANALYSIS

We've all experienced communication breakdowns. You know the feeling. One minute you're having a normal conversation with someone, and the next you're fighting or one of you has shut down. In both cases, there's a breakdown. The conversation has failed to achieve its goal, whether it's being heard, solving a problem, feeling connected, making a decision, etc.

THIS HAPPENS ALL THE TIME. IT TAKES SECONDS FOR A CONVERSATION TO SHIFT FROM A POSITIVE, CONNECTION-DRIVEN INTERACTION INTO A NEGATIVE ONE.

And negative interactions take a toll on our relationships. Studies show that we need 5 positive interactions to make up for every negative interaction we have with someone close to us.

ACCORDING TO TRANSACTIONAL ANALYSIS, COMMUNICATION BREAKDOWNS HAPPEN BECAUSE WE'RE NOT FULLY PRESENT IN OUR CONVERSATIONS.

Instead of reacting to the here and now, we're communicating from different 'ego states'. And when these ego states are crossed, conflict happens. This article will teach you how to use Transactional Analysis to have better, more constructive conversations (and interactions, in general) with the people closest to you. Part 1 will introduce Transactional Analysis, the different ego states, and common transactions. Part 2 will focus on the 'games we play' and how to change them.

TRANSACTIONAL ANALYSIS

Transactional Analysis (TA) is a psychological theory, developed by Eric Berne in the 1960s, that helps explain why we think, act and feel the way we do. TA claims that we can better understand ourselves by **analyzing our transactions** with the people closest to us. Transaction = conversation/interaction between two people. TA is most effective for understanding: 1) transactions with **people you're close** to, not colleagues or acquaintances and 2) transactions about **sensitive, important topics** such as sex, money, jealousy...pretty much anything that's triggering, i.e. causes a deep-rooted emotional reaction in you or the other person.

TA IS BASED ON 3 PRINCIPLES:

- We all have **three 'ego states'** (Parent, Adult, and Child)
- We all have **transactions** (with other people, or internally with ourselves)
- We all (unconsciously) **activate our ego states** in our transactions, which can lead to conflict, negative emotions, pain, etc.

Basically, transactional analysis is about identifying which ego states are present in your transactions so that you can become more conscious of your thoughts and behaviors, and ultimately have better, more constructive transactions with the people closest to you.

EGO STATES: PARENT, ADULT & CHILD

We all have all three ego states: Parent, Adult, and Child. These ego states are made up of consistent feelings and behaviors. *Ego states aren't always negative, see below. These ego states are being activated all the time, whether we're aware of it or not: **Parent (rooted in the past)** — Contains the attitudes, feelings, and behavior incorporated from our parents (or any primary caregiver). It involves responding as one of our parents would have: saying what they would have said, feeling what they would have felt, behaving how they would have behaved. nurturing parent: caring, loving, helping

- controlling parent: criticizing, reprimanding, censoring, punishing, etc.
Adult (rooted in the present) — Our ability to think and act based on what's happening in the here and now. Think of transactions you have with colleagues or acquaintances. These are usually pretty straightforward, without a lot of emotional triggers.
- A good way to know if your Adult ego state is activated is to examine whether your questions/comments are fueled by compassion and curiosity, or the desire to blame, criticize or prove a point.
Child (rooted in the past) — Contains the thoughts, feelings, and behaviors that we experienced as a child.
- natural child: curious, creative, open, loving
- adaptive child: guilty, afraid, depressed, anxious, envious, prideful, trying to please everyone...you get the picture.

IMPORTANT: The adaptive child is one of the most troublesome parts of our personality. It developed as we learned to change(adapt) our feelings and behavior in response to the world around us.

UNDERSTANDING EGO STATES

According to TA, our 3 ego states 'show up' whether we want them to or not, so it's important to be aware of what they 'look' like. The good news is that this is pretty easy to do. Simply think back and answer the following questions:

- **Child:** When you were a kid what do you remember feeling? What was a theme in your interaction with your parents? Were you always fighting for their attention? Did you feel unconditional love? Did you feel that you needed to prove yourself?
This is what Tony Robbins is getting at when he asks: "Think of the person whose love you craved most: what did you have to be for that person to accept and love you? What did you have to think or do to gain their approval?"
- **Parent:** When you were a kid how do you remember your parents behaving? Were they critical? Distrustful of others? Overly cautious? Reckless? What were their beliefs about the world, money, people, etc.?

Now pay attention to which elements of your Child and Parent ego states you've integrated into your own thoughts, beliefs, and behaviors. Every person's Parent and Child ego states are different. For example, when my Child ego state is activated I shut down and can't talk to anybody. Other people's Child may get defensive or lash out. It all depends on the patterns you picked up as a child. Now, think about the people closest to you. What does your partner's Child ego state look like? What about their Parent?

UNDERSTANDING TRANSACTIONS: COMPLEMENTARY, CROSSED & ULTERIOR

According to TA, there are three kinds of transactions: Complementary, Crossed & Ulterior. Part 1 will only focus on Complementary and Crossed transactions. Part 2 will focus on Ulterior transactions.

It's important to realize that there are three parts to each transaction:

1. **What you say** (your activated ego state)
2. **THE RESPONSE (AND EGO STATE) YOU EXPECT TO 'RECEIVE'**
3. **The response you actually receive** Complementary

Complementary transactions = effective and successful communication.

Complementary transactions are when two people's ego states are sympathetic or complementary to one another. This means that what you say and the response you expect to receive, and actually receive, are aligned. A complementary interaction is when Person 1 (Parent) speaks to Person 2 (Child), and Person 2 (Child) responds to Person 1 (Parent). It's easier to understand with pictures, see below.

EXAMPLE 1: ADULT – ADULT

Money is a trigger topic (at least in my experience) because it's uncomfortable, stressful and emotional to talk about. A complementary transaction around money would look like this: In this transaction, all is good:

- **Person 1** is curious about something, and asks a question from the Adult ego state, hoping they'll receive an answer from Person 2's Adult ego state.
- **Person 2** responds from his/her Adult ego state.
- **Result:** All good, two Adults are working together to understand a problem, make decisions, etc.

*I'm assuming that Person 1's question is fueled by curiosity, thus coming from the Adult ego state. However, it could be that Person 1's question is actually fueled by a desire to blame or prove a point. In this case, Person 1's 'Parent' ego state is probably being activated, not the Adult. Either way, the point of transactional analysis is to pay attention to your conversations with the people closest to you. To bring awareness to what roles (ego states) you're both activating and why.

EXAMPLE #2: PARENT - CHILD

Another complementary transaction is Parent -> Child. For example, this can occur when one person is sick and wants to be taken care of by the other person (P).

- **Person 1** feels like shit. Their Child ego state is activated because they want to be taken care of. They expect Person 2 to respond as a Parent.
- **Person 2** understands Person 1's request and is happy to oblige. Person 2's Parent ego state is activated and they happily take care of Person 1.
- **Result:** All is good. There's a balance of 'giving & receiving' and both parties feel loved.

HOW DO YOU KNOW YOU'RE HAVING A COMPLEMENTARY TRANSACTION?

1. **You feel ok** (i.e. you're not overwhelmed with emotions)
2. **YOU FEEL SEEN AND UNDERSTOOD**
3. **The conversation can go on forever** (no emotional outbursts, hurt feelings, slamming doors, or conversation stoppers — i.e. "I'm done with this conversation right now"). This means you can actually reason about things, make decisions, create a plan, etc.

CROSSED TRANSACTIONS

Crossed transactions happen when Person 1 says something from one ego state, and receives a different response than he/she is expecting. For example: Back to the money topic. In this transaction, all is NOT good:

- **Person 1** is curious about something, and asks a question from the Adult ego state, hoping they'll receive an answer from Person 2's Adult ego state.
- **Person 2** is triggered. Their Child ego state is activated (they feel criticized or patronized) and they're pissed.
- **Result:** Probably a fight, or an abrupt end to the conversation. Of course it's ok if this happens once in a while, however habitual communication breakdown is harmful to a relationship. Another example is:
- **Person 1** feels like shit. Their Child ego state is activated because they want to be taken care of. They expect Person 2 to respond as a Parent.
- **Person 2** hears Person 1, but doesn't see what the big deal is. His/her Adult ego state is activated and they tell Person 1 to rest.
- **Result:** Person 1 probably feels hurt because his/her needs weren't being met. *Again, crossed transactions happen all the time. TA is about bringing awareness to these transactions so we can

reduce their negative effect.

ACCORDING TO TA, ALL COMMUNICATION BREAKDOWNS OCCUR BECAUSE OF A CROSSED TRANSACTION.

When you're in the middle of a crossed transaction, the only way to get it back to a constructive place is for one, or both of you, to shift ego states. Usually, it's best to shift (or try very very hard to shift) to the Adult ego state. However, it can vary. You need to be attuned to what's actually happening in a conversation and the needs of each person (hard to do, but possible with practice).

DIALECTIC BEHAVIOR THERAPY

Dialectical behavior therapy (DBT) treatment is a type of psychotherapy — or talk therapy — that utilizes a cognitive-behavioral approach. DBT emphasizes the psychosocial aspects of treatment. The theory behind the approach is that some people are prone to react in a more intense and out-of-the-ordinary manner toward certain emotional situations, primarily those found in romantic, family and friend relationships. DBT theory suggests that some people's arousal levels in such situations can increase far more quickly than the average person's, attain a higher level of emotional stimulation, and take a significant amount of time to return to baseline arousal levels.

People who are sometimes diagnosed with borderline personality disorder experience extreme swings in their emotions, see the world in black-and-white shades, and seem to always be jumping from one crisis to another. Because few people understand such reactions — most of all their own family and a childhood that emphasized invalidation — they don't have any methods for coping with these sudden, intense surges of emotion. DBT is a method for teaching skills that will help in this task.

COMPONENTS OF DBT

- **Support-oriented:** It helps a person identify their strengths and builds on them so that the person can feel better about him/herself and their life.
- **Cognitive-based:** DBT helps identify thoughts, beliefs, and assumptions that make life harder: "I have to be perfect at everything." "If I get angry, I'm a terrible person" & helps people to learn different ways of thinking that will make life more bearable: "I don't need to be perfect at things for people to care about me", "Everyone gets angry, it's a normal emotion.
- **Collaborative:** It requires constant attention to relationships between clients and staff. In DBT people are encouraged to work out problems in their relationships with their therapist and the therapists to do the same with them. DBT asks people to complete homework assignments, to role-play new ways of interacting with others, and to practice skills such as soothing yourself when upset. These skills, a crucial part of DBT, are taught in weekly lectures, reviewed in weekly homework groups, and referred to in nearly every group. The individual therapist helps the person to learn, apply and master the DBT skills.

GENERALLY, DIALECTICAL BEHAVIOR THERAPY (DBT) MAY BE SEEN AS HAVING TWO MAIN COMPONENTS:

1. **Individual weekly psychotherapy sessions** that emphasize problem-solving behavior for the past week's issues and troubles that arose in the person's life. Self-injurious and suicidal behaviors take first priority, followed by behaviors that may interfere with the therapy process. Quality of life issues and working toward improving life in general may also be discussed. Individual sessions in DBT also focus on decreasing and dealing with post-traumatic stress responses (from previous

trauma in the person's life) and helping enhance their own self-respect and self-image. Both between and during sessions, the therapist actively teaches and reinforces adaptive behaviors, especially as they occur within the therapeutic relationship[...]. The emphasis is on teaching patients how to manage emotional trauma rather than reducing or taking them out of crises [...]. Telephone contact with the individual therapist between sessions is part of DBT procedures. (Linehan, 2014) During individual therapy sessions, the therapist and client work toward learning and improving many basic social skills.

- 2. Weekly group therapy sessions**, generally 2 1/2 hours a session which is led by a trained DBT therapist. In these weekly group therapy sessions, people learn skills from one of four different modules: interpersonal effectiveness, distress tolerance/reality acceptance skills, emotion regulation, and mindfulness skills are taught.

THE 4 MODULES OF DIALECTICAL BEHAVIOR THERAPY

1. Mindfulness

The essential part of all skills taught in skills group are the core mindfulness skills. Observe, Describe, and Participate are the core mindfulness "what" skills. They answer the question, "What do I do to practice core mindfulness skills?" Non-judgmentally, One-mindfully, and Effectively are the "how" skills and answer the question, "How do I practice core mindfulness skills?"

2. INTERPERSONAL EFFECTIVENESS

The interpersonal response patterns –how you interact with the people around you and in your personal relationships — that are taught in DBT skills training share similarities to those taught in some assertiveness and interpersonal problem-solving classes. These skills include effective strategies for asking for what one needs, how to assertively say 'no,' and learning to cope with inevitable interpersonal conflict. People with borderline personality disorder frequently possess good interpersonal skills. They experience problems, however, in the application of these skills in specific contexts — especially emotionally vulnerable or volatile situations. An individual may be able to describe effective behavioral sequences when discussing another person encountering a problematic situation, but may be completely incapable of generating or carrying out a similar set of behaviors when analyzing their own personal situation. This module focuses on situations where the objective is to change something (e.g., requesting someone to do something) or to resist changes someone else is trying to make (e.g., saying no). The skills taught are intended to maximize the chances that a person's goals in a specific situation will be met, while at the same time not damaging either the relationship or the person's self-respect.

3. DISTRESS TOLERANCE

Most approaches to mental health treatment focus on changing distressing events and circumstances. They have paid little attention to accepting, finding meaning for, and tolerating distress. This task has generally been tackled by religious and spiritual communities and leaders. Dialectical behavior therapy emphasizes learning to bear pain skillfully. Distress tolerance skills constitute a natural development from mindfulness skills. They have to do with the ability to accept, in a non-evaluative and nonjudgmental fashion, both oneself and the current situation. Although the stance advocated here is a nonjudgmental one, this does not mean that it is one of approval: acceptance of reality is not approval of reality. Distress tolerance behaviors are concerned with tolerating and surviving crises and with accepting life as it is in the moment. Four sets of crisis survival strategies are taught: distracting, self-soothing, improving the moment, and thinking of

pros and cons. Acceptance skills include radical acceptance, turning the mind toward acceptance, and willingness versus willfulness.

4. EMOTION REGULATION

People with borderline personality disorder or who may be suicidal are typically emotionally intense and labile — frequently angry, intensely frustrated, depressed, and anxious. This suggests that people grappling with these concerns might benefit from help in learning to regulate their emotions.

Dialectical behavior therapy skills for emotion regulation include:

- Learning to properly identify and label emotions
- Identifying obstacles to changing emotions
- Reducing vulnerability to “emotion mind”
- Increasing positive emotional events
- Increasing mindfulness to current emotions
- Taking opposite action
- Applying distress tolerance techniques

ART THERAPY, PERFORMING ART THERAPY

Art therapy is an integrative mental health and human services profession that enriches the lives of individuals, families, and communities through active art-making, creative process, applied psychological theory, and human experience within a psychotherapeutic relationship. Art therapy, facilitated by a professional art therapist, effectively supports personal and relational treatment goals as well as community concerns. Art therapy is used to improve cognitive and sensorimotor functions, foster self-esteem and self-awareness, cultivate emotional resilience, promote insight, enhance social skills, reduce and resolve conflicts and distress, and advance societal and ecological change.

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Art Therapy is used to improve cognitive and sensory-motor functions, foster self-esteem and self-awareness, cultivate emotional resilience, promote insight, enhance social skills, reduce and resolve conflicts and distress, and advance societal and ecological change. Art therapists are master-level clinicians who work with people of all ages across a broad spectrum of practice. Guided by ethical standards and scope of practice, their education and supervised training prepares them for culturally proficient work with diverse populations in a variety of settings. Honoring individuals' values and beliefs, art therapists work with people who are challenged with medical and mental health problems, as well as individuals seeking emotional, creative, and spiritual growth. Through integrative methods, art therapy engages the mind, body, and spirit in ways that are distinct from verbal articulation alone. Kinesthetic, sensory, perceptual, and symbolic opportunities invite alternative modes of receptive and expressive communication, which can circumvent the limitations of language. Visual and symbolic expression gives voice to experience, and empowers individual, communal, and societal transformation.

Performing Art Therapy in Geriatric Care – Presentation Transcript

1. Performing Art Therapy in Geriatric Care Dr. D. Dutta Roy Psychology Research Unit Indian Statistical Institute, Kolkata – 700108 Web :<http://www.isical.ac.in/~ddroy> E-mail: ddroy @ isical ac.in Venue: Paripurnata, 12.11.09 Audience: Senior People.

2. What is performing art therapy ?

- Performing art generally includes dance, music, songs, drama in organized fashion. Besides, painting, sculpturing, Yoga, farming etc. are the performing arts.
- Performing art therapy is the therapeutic process in which performing art therapist tends to explore one's needs, values, crisis in the life cycle;
- improvise performing art in such a fashion so that client can understand own needs and can develop coping strategy to overcome the crisis.
- In performing art, client is not merely receptive but productive and creative. Therefore, the objective of therapist will be to stimulate the client to understand self and socially accepted coping strategies. It develops adaptability within individual.

3. Role of Performing Art therapist

- Performing art therapist acts as the tool for
- Diagnosis
- Restoring (condition at control)
- Preventing and
- Promoting physical, mental, social and spiritual health.
- It is the process of achieving three layers of consciousness.

4. What happens during PAT ?

- During performing art, individual travels around different layers of consciousness – the outer, inner and inner core layers.
- During traveling, individual understands own crisis in life cycle, underlying reasons and sets own coping strategy.
- It helps individual to find meaning in life, to realize own self and develop high efficacy in cognitive, emotional, psycho motor co-ordination and over all health efficacy.
- It increases desires for life expectancy.
- It controls ageing process.

5. CONSCIOUSNESS PARADIGM Outer Layer: -Missing -Anomalies Inner Layer -Vividness -Orderliness -Complexity

- Inner Core Layer
- Harmony with Environment
- Aesthetics
- Cleanliness

6. A Journey

- Rabindrasangeet is a journey from outer layer to inner core through inner layer of consciousness.
- “Chokher aloy dekhechilem chokherbahire” (outer layer)
- “Antare aaj dekhbo, jakhan alok nahi re” (inner layer) & “Dharay jakhan dao na dhara hriday takhan tomay bhara, ekhon tomar apan aloy tomay chahi re” (innercore layer)

7. Playing in the outer layer

- “ Ami keboli swapan karechi bapan batase-
- Tai akashkusum karinu chayan hatashe
- Chayar matan milay dharani, kul nahi pay ashar tarani,
- Manaspratima bhasia beray akashe”
- “ Emni karei jay jadi din jak na, Mon ureche uruk na re mele diyeganer pakhna”

8. Mixing with inner core/Saraswat layer

- “ Amar poran jaha chay tumi tai, tumi tai Go toma chharaar e jogote mor keho nai, keho nai Go.
- Tumi sukh jodi nahi pao, jao sukher sondhane jao amitomare peyechhi hridhoymajhe, ar kichhu nahi chai go.
- Ami tomar birohe rohibo bileen, tomate koribo baasdirgho dibos dhirgho rojoni, dirgho boroshmaas.”

9. The Second stage

- The journey is not very smooth. Lot of ideas are broken,built and rebuilt.
- “ Tomay niye khelechilem khelar gharete khelar putul bhenge geche pralayy jhaarete Thak tabe sei kebol khela, hok -na ekhon praner mela- tarer bina bhanglo, hriday-binay gahi re. ”

10. Case Study 1: Where all fail, Rabindrasangeet acts

11. Response control of OCD

- A woman of 52 years old came to me with complaint of OCD to dirt. Patient reported her inability to control washing compulsion. For last 30 years, she regularly went to toilet for washing and cleaning hands. She always closed her hands tightly so that her hands would be completely cleaned. Before visit to me, she was treated by many psychiatrists and one psychologist. No notable changes are noticed except long time sleep.

12. Patient’s behaviour

- Very inhibitive;
- Hand clasping tightly;
- Strong resistance to open clasping;
- Non-cooperative to participate;
- Not able to administer any available psychological tests.

13. Analysis of patient

- Patient is searching for dirt in the outer layer.
- In the inner layer, dirt is perceived as threatening;
- Patient wants to move away from inner to inner corelayer. For the same, she spends most of the

time in worshipping the God and keeping cleanliness.

- She is not happy with soaping hands as this can not help her to reach at the innercore layer of consciousness.
- This results approach – avoidance conflict.
- (Approaching to the soap in order to avoid dirt, again few soaping is not sufficient, so more soaping is required).

14. Analysis of family

- Repeated soaping consumes more water;
- Family assumes that it is unreasonable but patient assumes it as reasonable ;
- Family member is not aware of consciousness dynamics playing inside the patient.

15. Therapeutic analysis

- Target: Preventing clasping hands;
- Consciousness model:
- Outer layer : Dirt perception;
- Inner layer : Dirt as threat;
- Innercore : Feeling of cleanliness;
- Currently, patient is moving around outer and inner layers only.
- Therapeutic target: Providing her Feeling of cleanliness.
- Rabindrasangeet is non-dirt area;
- Explore the song suitable for feeling of non-dirt area;

16. Session-1

- In the first session , patient was highly inhibitive to reveal herself. Due to difficulty in rapport establishment. I started singing — “Ananda loka, mangala loka” (moving to spiritual land).
- Suddenly, she started singing with me in very low voice;
- I paid my attention to her and started moving the hands keeping with the rhythm and waves of the song loudly. She participated into my hand movement and sang the song loudly.

17. Session-2

- In the 2nd session after 6 days, the client sang with me same song by standing. She moved her hands above head when she sang “Grahataraka chandra tapanabyakula drutabege” (the planets, satellites are moving speedily). It is noted that her hands now completely opened.

18. Session-3

- In the 3rd sitting, patient reported that she alone practiced two songs
- “Ektuku chona lage...” (feeling light touch), and
- “Eto din je bosechinu” (waiting for long days) at home. Finally, she sang with me both songs along with Ananda loka, danced and she never closed her hands.
- Termination : Patient herself is able to prevent stopping hand clasping.

19. Searching Principle : Growth of inquisitiveness Feeling of scattered impulses,needs etc. Searching cues Does it give meaningful pattern ? N Y

20. Geriatric assessment

21. Geriatric Disorders

- Organic Disorders : Dementia, Delirium
- Psychological Disorders :
- Neurotic (Anxiety disorder, Phobic disorder, Conversion reaction, Dissociative Reaction, Obsessive Compulsive disorder, Depression, Hypochondriasis)
- Psychotic (Schizophrenia, Manic-Depressive Disorder,Paranoia)
- Substance abuse
- Sexual disorder

22. History

- Modern geriatrics in the United Kingdom really began with the "Mother" of Geriatrics, Dr. Marjorie Warren . Warren emphasized that rehabilitation was essential to the care of older people. She developed the concept that merely keeping older people fed until they died was not enough- they needed diagnosis, treatment, care and support . She found that patients, some of whom had previously been bedridden, were able to gain some degree of independence with the correct assessment and treatment.
- Another "hero" of British Geriatrics is Bernard Isaacs , who described the "giants" of geriatrics: incontinence, immobility, impaired intellect and instability. Isaacs asserted that if you look closely enough, all common problems with older people relate back to one of these giants

23. Geriatric Psychology for the Care givers

- To understand different principles leading to formation of different symptoms of geriatric disorders.
- Biological Paradigms : Brain mapping, Loss or injury
- Psychological Paradigms : Psychodynamic, Learning,Cognitive
- To understand principles of Psychology in order to improve quality of life of the elderlylyly people.
- Counseling, Psychotherapy, Individual and communitycare.

24. BIOLOGICAL PARADIGM

- BRAIN MAPPING
- LOSS OF BRAIN FUNCTIONS

25. Brain Mapping

- Frontal Lobe
- How we know what we are doing within our environment (Consciousness). How we initiate activity in response to our environment. Judgments we make about what occurs in our daily activities. Controls our emotional response. Controls our expressive language. Assigns meaning to the words we choose. Involves word associations. Memory for habits and motor activities.
- Parietal Lobe

- Location for visual attention. Location for touch perception. Goal directed voluntary movements. Manipulation of objects. Integration of different senses that allows for understanding a single concept.
- Occipital Lobe
- Vision
- Temporal Lobe
- Hearing ability Memory acquisition Some visual perceptions Categorization of objects.
- Brain Stem
- Breathing Heart Rate Swallowing Reflexes to seeing and hearing (Startle Response). Controls sweating, blood pressure, digestion, temperature (Autonomic Nervous System). Affects level of alertness. Ability to sleep. Sense of balance (Vestibular Function).
- Cerebellum
- Coordination of voluntary movement Balance and equilibrium Some memory for reflex motor acts.

26. Loss of Brain Functions

- Frontal Lobe
- Loss of simple movement of various body parts (Paralysis). Inability to plan a sequence of complex movements needed to complete multi-stepped tasks, such as making coffee (Sequencing). Loss of spontaneity in interacting with others. Loss of flexibility in thinking. Persistence of a single thought (Perseveration). Inability to focus on task (Attending). Mood changes (Emotionally Labile). Changes in social behavior. Changes in personality. Difficulty with problem solving. Inability to express language (Broca's Aphasia).
- Parietal Lobe
- Inability to attend to more than one object at a time. Inability to name an object (Anomia). Inability to locate the words for writing (Agraphia). Problems with reading (Alexia). Difficulty with drawing objects. Difficulty in distinguishing left from right. Difficulty with doing mathematics (Dyscalculia). Lack of awareness of certain body parts and/or surrounding space (Apraxia) that leads to difficulties in self-care. Inability to focus visual attention. Difficulties with eye and hand coordination.
- Occipital Lobe
- Inability to attend to more than one object at a time. Inability to name an object (Anomia). Inability to locate the words for writing (Agraphia). Problems with reading (Alexia). Difficulty with drawing objects. Difficulty in distinguishing left from right. Difficulty with doing mathematics (Dyscalculia). Lack of awareness of certain body parts and/or surrounding space (Apraxia) that leads to difficulties in self-care. Inability to focus visual attention. Difficulties with eye and hand coordination.
- Temporal Lobe
- Difficulty in recognizing faces (Prosopagnosia). Difficulty in understanding spoken words (Wernicke's Aphasia). Disturbance with selective attention to what we see and hear. Difficulty with identification of, and verbalization about objects. Short-term memory loss. Interference with long-term memory Increased or decreased interest in sexual behavior. Inability to categorize objects (Categorization). Right lobe damage can cause persistent talking. Increased aggressive behavior.

27. Comprehensive geriatric assessment

- Identification : Age, sex, brought in by whom, chief complaint

- Source of History (include reliability rating) : Patient, caregiver, family, friends Medical records, Previsit questionnaire
- History of Present Problems/Condition
- Medications — old medication lists, herbal/alternative medications , Allergies/Adverse Drug Reactions : Name specific medications and characterize specific allergic/adverse drug reaction for each medication
- Habits : tobacco, recreational drugs
- Social History : Education, Marital Status/Children, Household members, Activities/Exercise, Travel, Occupational History/Toxin Exposures, Diet, Caffeine, Sexual Activity, Caregiver roles
- Past Medical History : (ask about previous medical records, old lab/imaging/study reports)
- Family History : Heart disease, cancer, diabetes, TB,HTN, mental health, Alzheimer's disease
- Care Resources : past and present Home Health, Case Management, etc.
- Personal History : Environment, Reverse developmental milestones
- Review of Systems :
 - General : fevers, chills, malaise, fatiguability, nightsweats, weight changes
 - Neurologic : syncope, seizures, weakness, paralysis, abnormal sensation/coordination, tremors, memory loss
 - Psychiatric : depression, mood changes, difficulty concentrating, nervousness, tension, suicidal ideation, irritability, sleep disturbances
 - Sensory Functions : visual changes, hearing changes, neuropathy, balance/coordination
 - Motor Functions : gait, falls, ataxia
 - Diet : preferences, restrictions (religious, allergic, disease), vitamins/supplements, caffeine, food/liquid intake diary , "look in fridge test" , who prepares/obtains food
 - Skin : rash/eruption, itching, pigmentation, excessive sweating, nail/hair abnormalities
 - Head : Headaches, dizziness, syncope, severe head injuries, loss of consciousness
 - Eye : visual changes, blurring, diplopia, photophobia, pain, eye medication use, eye trauma, FH of eye disease
 - Ears : hearing loss, pain, discharge, tinnitus, vertigo
 - Nose : sense of smell, obstruction, epistaxis, postnasal drip, sinus pain, rhinorrhea
 - Oral : hoarseness, sore throat, gum bleeding/soreness, tooth abscess/extraction, ulcers, taste changes Comprehensive geriatric assessment²⁹.
 - Cardiac/Peripheral Vascular : Chest pain, palpitations,dyspnea, orthopnea, edema, claudication, HTN, previous MI, exercise tolerance, previous cardiac studies
 - Pulmonary : pleuritic pain, dyspnea, cyanosis, wheezing, cough/sputum, hemoptysis, TB exposure, previous CXR's
 - Gastrointestinal : appetite, digestion, dysphagia, heartburn, nausea, vomiting, hematemesis, diarrhea, constipation, stool changes, flatulence, hemorrhoids,hepatitis, jaundice, dark urine, history of ulcers/gallstones/polyps/tumors, previous X-rays
 - Renal/Urinary :dysuria, flank/suprapubic pain, urgency,frequency, nocturia, hematuria, polyuria, hesitancy, dribbling, force of stream changes, STD's
 - Hematologic : anemia (dizziness/fatigue/dyspnea), easy bruising/bleeding, blood cell abnormalities, transfusions
 - Lymphatic : lymph node enlargement/tenderness
 - Endocrine/Metabolic : thyroid enlargement/pain, heat/cold intolerance, unexplained weight change, diabetes,polydipsia, polyuria, facial/body hair changes, increased hat/glove size, striae
 - Musculoskeletal : joint stiffness, pain, limited ROM, swelling, redness, heat, bone deformity
 - Sexual : libido, intercourse frequency, sexual difficulties, impotence
 - Gynecologic : itching, last Pap smear, menopause age

- Breasts : pain, tenderness, discharge, lumps,mammograms, self-breast exams Comprehensive geriatric assessment

30. Geropsychiatric Mental Status Exam

- Most of this exam is observed through the interview conversation with patient
- General Appearance/Behavior: Grooming and hygiene,unusual movements, attitude, psychomotor activity, eye contact
- Affect: (external range of expression) flat, blunted, labile, full/wide range
- Mood: (internal emotional tone) dysphoric, euphoric, angry, euthymic, anxious
- Thought Processes: Language (quality/quantity of speech), tone, associations, speech fluency
Note presence of: pressured speech, poverty of speech, blocking, flight of ideas, loosening of associations,tangentiality, Circumstantiality, echolalia, neologisms,clanging, perseveration, ideas of reference
- Thought Content: note hallucinations, delusions, illusions,derealization, depersonalization, suicidal or homicidal ideation
- Cognitive: (mostly covered by psychometric tests)level ofconsciousness, orientation
- Insight: the patient's understanding of his or her problemsand implications of these problems
- Judgment: based on history of patient's decision making abilities

31. Geriatric care by the caregiver

- I) Social Information II) Caregiver Information III) Patient'sHealth IV) Head Injury V) Activities of Daily Living VI) History of Falls VII) Vision VIII) Hearing IX) Dentition X) Bowel/Bladder XI) Sexuality XII) Nutrition XIII) Communication XIV) Usual daily activities (with exercise) XV) Sleeping XVI) Finances XVII) Home Safety Checklist XVIII) Current Medications XIX) Care resources/agencies

32. Geriatric care by Psychologist

33. Counselling VS Psychotherapy

- Counselling
- A brief treatment focusing on patient's current problems.
- Helping people who have the capacity to cope in most circumstances, who are experiencing temporary difficulties or in a psychosocial transition.
- Psychotherapy
- Psychotherapy is more concerned with the resolution of longstanding personal issues and may be either brief or long term.
- When issues are more symptomatic of something deeper.

34. Why Psychotherapy ?

- It helps aged to deal with those issues and the emotional problems surrounding them and to understand their behavior on others. In addition to improving interpersonal relations psychotherapy increases self esteem and self confidence, decreases feelings of helplessness and anger and improves the quality of life. Psychotherapy of the aged has the general aim of assisting the old person to have minimal complaints to help him or her make and keep fresh of both sexes, and to have sexual relationship where there is still interest and capacity. Psychotherapy helps relieve tension of biological and cultural origins andhelps old persons work and play within the limits of

their functional status and as determined by their past training activities and self concept in society.

35. Psychodynamic Paradigm

- Pathology of elderly people is due to conflict between structures of mind – Id, Ego and Super Ego.
- Study the pathology in terms of energy processing from Unconscious to conscious through Pre-conscious.
- Psychosexual stages
- Oral, Anal, Phallic, Genital and Latency
- Study it in terms of Ego-defense mechanisms — Regression, Repression, projection, rationalization, displacement, reaction formation etc.

36. Neo-Freudian

- ADLER
- Study abnormal behavior in terms of
- one's failure in striving for perfection,
- Organ Inferiority, Psychological inferiority.
- Defenses
- Compensation
- Superiority Complex
- ERIKSON
- Abnormality is due to one's failure in handling crisis of earlier stage.
- Stage One Oral-Sensory: from birth to one, trust vs. mistrust, feeding;
- Stage Two Muscular-Anal: 1-3 years, autonomy vs. doubt, toilet training;
- Stage Three Locomotor: 3-6 years, initiative vs. inadequacy, independence;
- Stage Four Latency: 6-12 years, industry vs. inferiority, school;
- Stage Five Adolescence: 12-18 years, identity vs. confusion, peer relationships;
- Stage Six Young Adulthood: 18-40 years, intimacy vs. isolation, love relationships;
- Stage Seven Middle Adulthood: 40-65 years, generativity vs. stagnation, parenting;
- Stage Eight Maturity: 65 years until death, integrity vs. despair, acceptance of one's life.

37. Psychodynamic Counseling

- Psychodynamic therapists make genetic links between early childhood experiences and deal patient's current character structure and symptomatology. The patient's emotional response to the therapist (transference) and the therapist's emotional response to the patients (counter transference) are also sources of learning. Key patterns of feeling and behaving from early childhood are repeated or 'transferred' on to the people in the patient's adult life including the therapist.

38. Geriatric care by Performing art therapist

39. Performing art acts as tool for diagnosis and therapy

40. Dance, song and drama make your body fit

41. Social dancing

- Social dancing increases feeling of generativity and reduces stagnation in life;

- It reduces feeling of loneliness;
- It provides social support and care;
- It encourages life expectancy
- It contributes to the longevity of the dancers, giving them something to enjoy and focus upon – to live for.
- it alleviates social isolation and quite literally helps take away the aches and pains associated with older age."

EXPRESSIVE ARTS THERAPY

Expressive arts therapy is a multimodal approach to therapy similar to its cousins drama therapy and music therapy. Expressive arts therapy may incorporate writing, drama, dance, movement, painting, and/or music. People utilizing expressive arts therapy are encouraged by a qualified therapist to explore their responses, reactions, and insights through pictures, sounds, explorations, and encounters with art processes. A person is not required to have artistic ability to use or benefit from expressive arts therapy.

HISTORY OF EXPRESSIVE ARTS THERAPY

Relatively new in its formation, expressive arts therapy began circa 1970 at the Leslie College Graduate School in Cambridge, Massachusetts. Paolo Knill, a leader in the field, founded the International Network of Expressive Arts Therapy Training Centers and, in 1984, began the ISIS European Training Institutes. Expressive arts therapy was formed as a distinct practice alongside the modalities at the root of its creation. It utilizes all expressive modalities such as art, music, drama, and dance therapies. Although expressive arts therapists are not experts in all of these areas (many have multiple proficiencies), they typically possess the sensitivity and ability to grasp the intermodal technique.

EXPRESSIVE ARTS THERAPY PROCESS

Use of the expressive arts multiplies the avenues by which a person in therapy may seek meaning, clarity, and healing. It deepens and transcends traditional talk therapy by acknowledging that each person's process is unique. While one individual may like talk therapy, another person may prefer to use journaling, movement, art, or a combination of different experiences during therapy. The accessibility of expressive arts therapy is due to the focus being not on artistic outcomes but rather on the process of creating. A person who utilizes expressive arts therapy is not required to have any artistic ability. Rather, it is through the use of the individual's senses that the imagination can process, flourish, and support healing. As such, the process is often referred to as "low skill, high sensitivity."

Each creative arts modality is unique, and the use of each is carefully considered by each expressive arts therapist. For example, journaling might be an appropriate expressive outlet for someone new to therapy. On the other side of the spectrum, a person who has already established a strong therapeutic relationship with his or her therapist may appreciate the use of movement or drama. Careful use of each modality is determined by the strength, timing, pacing, and readiness of the person in therapy. Different modalities may be used at any point throughout the therapeutic process as needed. Homework may also be issued for the person in therapy to complete between sessions.

CONDITIONS TREATED WITH EXPRESSIVE ARTS THERAPY

Expressive arts therapy may be used as a part of the treatment strategy for a wide variety of behavioral, emotional, and mental health conditions. These include:

- Attention-deficit hyperactivity
- Developmental disabilities
- Eating disorders
- Traumatic brain injury
- High levels of stress
- Anxiety
- Depression
- Posttraumatic stress
- Chronic medical illnesses
- Social challenges

EXPRESSIVE ARTS THERAPY TECHNIQUES

Many definitions of expressive arts therapy mention its use of distinct features such as music, movement, play, psychodrama, sculpture, painting, and drawing. If necessary, though, therapists may choose to combine several techniques in order to provide the most effective treatment for the individual in therapy. Popular therapeutic approaches may involve the use of various drawing and art techniques, including:

- Finger painting
- The squiggle drawing game (sometimes used in other therapeutic approaches, especially with children)
- Mask making
- The blob and wet paper technique
- The kinetic family drawing technique

To illustrate, finger painting may be used as a form of projective play wherein the therapist takes note of the types of lines drawn, the colors used, as well as the work rate and rhythm of the person in treatment. In a typical session the therapist will describe the process, but will not suggest a specific topic or the colors to be used. Instead, the therapist may provide broad instructions such as “paint something important to you” or “paint a picture of a dream you had.” The therapist then observes the content being produced and the behavior of the person in therapy. Once the picture is finished, the therapist will ask the affected individual to tell a story about the painting. Finger painting has proven effective in the treatment of children with behavioral issues or other related mental health issues. Through consistent use of this technique, therapists may be able to learn about a child’s personality traits, motor skills, and inner world.

EXPRESSIVE ARTS THERAPY RESEARCH

The therapeutic impact of expressive arts therapy is focused on four major areas:

- Expression
- Imagination
- Active participation
- Mind-body connection.

Studies indicate that music may help individuals experiencing a wide range of social, developmental, and behavioral issues grow in self-awareness and self-confidence and learn new skills and concepts. Expressive arts therapy has also successfully helped children experiencing hyperactivity or social anxiety to control impulsive and aggressive behaviors. Though evidence from empirically valid studies is limited, expressive arts therapy has been used to help individuals with disordered eating

habits to explore issues regarding body image, self-esteem, social isolation, and depression.

People with medical illnesses may also benefit from expressive arts therapy. Past research has studied how creating artistic photographs may help people cope with the distress of hospitalization. Another study concluded elderly men and women who are part of an active choir report better health, less doctor visits, fewer falls, and less medication use than peers who are not part of an organized arts program. Finally, another body of research on children with cystic fibrosis who took part in a creative arts support program found the children learned how to better express themselves, reduce stress, and find meaning in their current health situation.

HOW ART THERAPY DIFFERS FROM EXPRESSIVE ARTS THERAPY

Modalities such as art therapy, music therapy, poetry therapy, dance/movement therapy, and expressive arts therapy are all examples of creative arts therapy. While the majority of these disciplines are based in a single art modality, however, expressive arts therapy integrates therapeutic tools and techniques from many different art forms. The combination of a variety of arts-based therapeutic modalities creates a new approach which is distinct from its individual components. Certified expressive arts therapists rely on their creativity and training in order to decide which modality should be utilized at a particular time. Expressive arts therapists may even employ techniques from a range of other modalities in a single therapy session. The focus of expressive arts therapy is on the therapeutic effect of the creative experience, and it highlights the human capacity to transform thoughts, emotions, and experiences into tangible shapes and forms. The approach is described as “integrative” when different art techniques are intentionally used in combination with traditional medicines to promote improved health.

TRAINING FOR EXPRESSIVE ARTS THERAPISTS

Training to be an expressive arts therapist requires at least a master’s degree in counseling with a concentration in expressive arts therapy from an accredited university. Additionally, some institutions offer certificate programs or studies in expressive arts for those who wish to use the expressive arts in related fields such as coaching, consulting, and education. Bachelor’s and PhD options are available, while certification and training continues to grow internationally. For a list of current available resources, please visit the International Expressive Arts Therapy Association (IEATA), which highlights graduate training programs, certificates, and professional development programs in expressive arts therapy. Those wishing to access this type of therapy are encouraged to find a therapist certified in expressive arts therapy.

LIMITATIONS OF EXPRESSIVE ARTS THERAPY

One of the major criticisms of expressive arts therapy is the fact that the primary reason for healing is not clearly discernible. It is not clear whether healing occurs from the creative process or if it is due to positive interactions with the therapist. As currently published studies tend to focus on immeasurable qualitative benefits, a lack of empirical evidence in support of the effectiveness of the approach is a concern.

FAMILY THERAPY

We all start this life with a family, whether that family is composed of blood relatives, adopted parents, a close-knit neighborhood, or a foster family. This family that we acquire when we are born influences every aspect of our lives, from our first moments to our last. Our family affects who we are and who we become, for better and for worse. We learn our vocabulary, our habits, our customs and rituals, and how to view and observe the world around us. We also learn how to love and how to

interact with others from these first important relationships. If we are born into a healthy family with healthy relationships, we are likely to learn how to maintain healthy relationships. If we are born into a dysfunctional family that struggles to connect, we may also struggle to connect with others. While it is certainly unlucky to be born into the second kind of family, it's not an unchangeable situation. Nearly all families deal with some sort of dysfunction at one time or another, yet most families retain or regain a sense of wholeness and happiness.

Family therapy offers families a way to do this—a way to develop or maintain a healthy, functional family. Family therapy is a type of psychological counseling (psychotherapy) that can help family members improve communication and resolve conflicts. Family therapy is usually provided by a psychologist, clinical social worker or licensed therapist. These therapists have graduate or postgraduate degrees and may be credentialed by the American Association for Marriage and Family Therapy (AAMFT). Family therapy is often short term. It may include all family members or just those able or willing to participate. Your specific treatment plan will depend on your family's situation. Family therapy sessions can teach you skills to deepen family connections and get through stressful times, even after you're done going to therapy sessions.

Family therapy can help you improve troubled relationships with your partner, children or other family members. You may address specific issues such as marital or financial problems, conflict between parents and children, or the impact of substance abuse or a mental illness on the entire family. Your family may pursue family therapy along with other types of mental health treatment, especially if one of you has a mental illness or addiction that also requires additional therapy or rehabilitation treatment. For example:

- Family therapy can help family members cope if a relative has a serious mental illness such as schizophrenia — but the person who has schizophrenia should continue with his or her individualized treatment plan, which may include medications, one-on-one therapy or other treatment.
 - In the case of addiction, the family can attend family therapy while the person who has an addiction participates in residential treatment. Sometimes the family may participate in family therapy even if the person with an addiction hasn't sought out his or her own treatment.
- Family therapy can be useful in any family situation that causes stress, grief, anger or conflict. It can help you and your family members understand one another better and learn coping skills to bring you closer together.

HOW YOU PREPARE

You can ask your primary care doctor for a referral to a therapist. Family members or friends may give recommendations based on their experiences. You also can ask your employee assistance program, clergy, or state or local mental health agencies for suggestions for therapists.

Before scheduling sessions with a therapist, consider whether the therapist would be a good fit for your family. Here are some factors to consider and questions to ask:

- **Education and experience.** What is your educational and training background? Are you licensed by the state? Are you accredited by the AAMFT or other professional organizations? Do you have specialty training in family psychotherapy? What is your experience with my family's type of problem?
- **Location and availability.** Where is your office? What are your office hours? Are you available in case of emergency?
- **Length and number of sessions.** How long is each session? How often are sessions scheduled?

How many sessions should I expect to have?

- **Fees and insurance.** How much do you charge for each session? Are your services covered by my health insurance plan? Will I need to pay the full fee upfront? What is your policy on canceled sessions?

WHAT YOU CAN EXPECT

Family therapy typically brings several family members together for therapy sessions. However, a family member may also see a family therapist individually. Sessions typically take about 50 minutes to an hour. Family therapy is often short term — generally about 12 sessions. However, how often you meet and the number of sessions you'll need will depend on your family's particular situation and the therapist's recommendation.

DURING FAMILY THERAPY, YOU CAN:

- Examine your family's ability to solve problems and express thoughts and emotions in a productive manner
- Explore family roles, rules and behavior patterns to identify issues that contribute to conflict — and ways to work through these issues
- Identify your family's strengths, such as caring for one another, and weaknesses, such as difficulty confiding in one another

EXAMPLE: DEPRESSION

Say that your adult son has depression. Your family doesn't understand his depression or how best to offer support. Although you're worried about your son's well-being, conversations with your son or other family members erupt into arguments and you feel frustrated and angry. Communication diminishes, decisions go unmade, family members avoid each other and the rift grows wider. In such a situation, family therapy can help you:

- Pinpoint your specific challenges and how your family is handling them
- Learn new ways to interact and overcome unhealthy patterns of relating to each other
- Set individual and family goals and work on ways to achieve them

RESULTS

Family therapy doesn't automatically solve family conflicts or make an unpleasant situation go away. But it can help you and your family members understand one another better, and it can provide skills to cope with challenging situations in a more effective way. It may also help the family achieve a sense of togetherness.

WHAT IS APPLICATIONS OF THEORIES OF MOTIVATION AND LEARNING IN SCHOOL FACTORS IN EDUCATIONAL ACHIEVEMENT TEACHER EFFECTIVENESS GUIDANCE IN SCHOOLS: NEEDS, ORGANIZATIONAL SET UP AND techniques Counselling: Process, skills, and techniques?

APPLICATIONS OF THEORIES OF MOTIVATION AND LEARNING IN SCHOOL

In a couple of previous posts I briefly touched on theories of motivation and on how they can be tapped into to raise student achievement. In particular I concerned myself with a relatively unknown and yet powerful catalyst of motivation, self-efficacy, or expectancy of success, which, if nurtured regularly and adequately in the classroom can majorly impact learning. In this post I will very

concisely outline the main principles underpinning other influential motivational theories and how I deploy them in my every day teaching in an attempt to enhance my students' motivation. Here is a **very minimalistic** overview of 8 of the 20 theories of motivation I brainstormed before writing this article. Please note that their tenets and implications for the classroom have been overly simplified; hence, if you are keen to apply them to your specific teaching context, you may want to find out more about them.

1. COGNITIVE DISSONANCE

Cognitive dissonance occurs when there is an unresolved conflict in our mind between two beliefs, thoughts or perceptions we hold about a given subject. The level of tension resulting from such conflict will be a function of:

- How strong the conflict is between the two dissonant thoughts;
- How important the issue they relate to are to a specific individual or group;
- How difficult it is to rationalize (justify through logical or pseudo-logical reasoning) the dissonance.

Cognitive dissonance is a very powerful motivator which, as I shall discuss in a future post, is often used in transformational change programs both in the business and educational world. The reason why it is so powerful is because, when used effectively, Cognitive dissonance creates a sense of discomfort in an individual which in order to be resolved results in one of two outcomes:

- The individual changes behavior (possibly replacing the existing behavior with the newly modelled one);
- The individual does not adopt the new behavior and justifies his/her behaviour by changing the conflicting cognition created by the new information, instead.

Implications for the classroom: Whenever you want to change a student's attitude, first identify the beliefs at the heart of that attitude; when you have a fairly clear picture induce cognitive dissonance by producing powerful information and arguments which counter those beliefs. The degree of cognitive dissonance should be as high as possible for the attitudinal change we purport to bring about to be effective. For example, when dealing with a misbehaving child, to simply tell them off for what they did will be way less effective than raising their awareness of the ways their conduct affected others negatively and explaining why is morally/ethically wrong. Or, to impose a new methodology to one's team of teachers by saying it is more effective than the one currently in use by merely providing statistics from a few research studies which point to its greater effectiveness will not be as powerful as explaining to them **why the old approach is failing the target students and the new can more effectively address the identified shortcomings**. Another example in the realm of language learning: many foreign language students in England hold negative views about the country (ies) where the target language is spoken. If one wants to change such attitudes one may want to first find out what beliefs are at the root of those attitudes (e.g. are they xenophobic stereotypes?); then in a lesson or series of lesson (at the beginning of the year, maybe?) provide objective and solid reasons to prove that those beliefs are indeed false using supporting evidence which will resonate with the students' sub-culture, thereby creating cognitive dissonance. Research suggests that over-using statistics may be detrimental and that engaging the target students in a discussion on the issues-in-hand after the new information has been provided, will enhance the chances of attitudinal change to occur. This process may induce the learners to restructure their cognition.

2. DRIVE REDUCTION THEORY

This theory is centred on the notion that we all have needs that we attempt to satisfy in order to

reduce the tension or arousal they cause. **The internal stimuli these needs produce are our main drives in life.** There are Primary drives which refer to basic needs (food, sleep, procreation, etc.) and Secondary drives which refer to social identity and personal fulfillment. As we act on our needs we are conditioned and acquire habits and subconscious responses. So, for example: when a child needs to feel good about himself, he may recite a poem, sing a song, perform a dance or other 'feats' to his parents knowing he is going to get some recognition. Whenever he needs recognition in other contexts, this individual will possibly use the same tactics in order to get the same response from any other figure of authority — including teachers. When the driven action does not satisfy his needs or the enacting of drives is frustrated, negative emotions (e.g. anxiety) arise. To go back to the previous example: if the boy is looking for a chance to show off to an authority figure his 'skills' but he is not given the opportunity to do so, he will feel frustrated, angry and/or unappreciated — a very common scenario in school, often dismissed as the child being 'naughty' or 'unruly'. Implications for the classroom: find out what drives your students, especially the difficult ones. Instead of approaching the problem by 'punishing' them, have a one-on-one chat with them and try to discover what is that they find fulfilling and see if you can find opportunities in your lessons for them to enact their drives. For instance, if you have a student passionate about drama who does not seem to enjoy language learning, ask them to contribute their acting skills by miming vocabulary or sentences in lessons or setting up a mini-production in the target language.

3. ATTRIBUTION THEORY

When we make a mistake or 'fail' at something we tend to go through a two-step process. We first experience an automatic response involving **internal attribution** (i.e. the error is our fault); then a conscious, slower reaction which seeks to find an alternative **external attribution** (e.g. the error is due to an external factor). This is because we all have a vested interest in 'looking good' in our own eyes — a sort of survival mechanism. This type of response, however, is unlikely to lead to self-improvement, as it results in an individual not addressing the real cause of their error/bad performance in the future. Roesch and Amirham (1997) found that more experienced and successful athletes made more self-serving attributions which lead to identifying and addressing the internal causes of their performance errors. Implications for the classroom: when dealing with students who complain about not progressing because the subject, skill or task is too hard for them, show them — where applicable — that the reasons why they are not improving is not intrinsic in the nature of that subject, skill or task, but has more to do with other factors under his/her control (e.g. the study habits, such as lack of systematic revision). This will create cognitive dissonance and may have an impact on their attitude, **especially if they are shown strategies that may help them improve in the problematic area(s) of their learning.** The afore mentioned research by Roesch and Amirham (1997) and their findings could be drawn upon and discussed with your students to reinforce the point; I often do, citing the example of famous athletes the students admire and pointing out how they learn from their mistakes by watching videos of themselves playing a match over and over again or asking peers/experts for feedback in order to identify and address their shortcomings.

4. ENDOWED PROGRESS EFFECT

When people feel they have made some progress towards a goal, they will feel more committed towards its achievement. Conversely, people who are making little or no progress are more likely to give up early in the process. In my work with very low achieving 'difficult' students when I operated in challenging inner-city-area schools, sitting with them at the beginning of a task and guiding them through open questioning often 'did the trick' where threatening them with sanctions had

failed miserably. Implications for the classroom: Whatever the task you engage your students in, ensure that they all experience success in the initial stages. This may call for two approaches which are not mutually exclusive: (1) design any instructional sequence in a 'stepped' fashion, with 'easy' tasks that become gradually more difficult; (2) provide lots of scaffolding (support) at the initial stages of teaching.

5. COGNITIVE EVALUATION THEORY

When looking at a task, we assess it in terms of how well it meets our need to feel competent and in control. We will be intrinsically motivated by tasks we believe fall in our current level of competency and 'put off' by those which we deem we will do poorly at. This issue is often more about self-perception of one's levels of competency than objective truth. Implications for the classroom: we need to ensure that before engaging students in challenging tasks that they may perceive as being beyond their levels of competence we prepare them adequately, cognitively and emotionally. For instance, in language learning, before carrying out a difficult listening comprehension task, students should be exposed several times to any unfamiliar vocabulary or other language item contained in the to-be-heard recording so as to facilitate the task. Moreover, modelling strategies that may facilitate the tasks and giving them the opportunity to experience some success in similar tasks through those very strategies may increase their sense of self-efficacy; this will give them greater expectancy of success and a feeling of empowerment which will feed into their sense of competency and control. Another important implications relate to the way we design the curriculum and assessment. For effective progression from a lower level to a higher one to be possible, students must be given plenty of opportunities to consolidate the material processed at the lower level before moving on. This does not often happen in courses which rely heavily on textbooks. For instance, in most of the institutions I have worked in over 25 years of teaching, I was asked to teach a unit of work every six-seven weeks, a totally unrealistic pace when contact time is limited to one or two hours a week. The result: the weaker children are usually left behind.

6. SELF-DETERMINATION THEORY; INTRINSIC AND EXTRINSIC MOTIVATION.

Individuals differ from one another in terms of PLOC (personal locus of causality). Some will feel that their behavior is self-determined; they are the initiators and sustainers of their actions and their PLOC will be internal. Others will see external forces as determinants of their lives; coercing them into actions. These people's PLOC will be external. The internal locus is connected with **intrinsic motivation**, whilst the external locus is connected with **extrinsic** motivation. Extrinsic motivation is when one is motivated by external factors, such as rewards, social recognition or fear of punishment. This kind of motivation focuses people on rewards rather than action. Intrinsic motivation, on the other hand, refers to the desire to do things because we enjoy doing them, hence it is a stronger motivator than Extrinsic motivation. Three needs lead to intrinsic motivation:

- Being successful at what we do (i.e. I enjoy French because I am good at it);
- Being connected with others (i.e. I love my French class because I have bonded well with the rest of the class)
- Having autonomy (see below)

An important factor leading to Intrinsic Motivation creation is providing learners with the opportunity to develop **effectance**. Effectance refers to one of the 3 points made above (being successful at what we do) and is given rise to when the learner accomplishes success at something that they perceive challenging and falling in what Deci (1997) terms 'Optimal zone of development'

— i.e.: a task that it is perceived as difficult enough to be challenging but within the stretch of the learner's ability. Effectance does not arise when we simply give students 'easy' work; that is why the 'easy wins' strategy often fails with students with poor intrinsic motivation; students are not stupid, they know you are dumbing down the work to make them feel good and the ensuing praise will not affect their self-regard as learners of your subject.

Self-determination theory assumes that there are individuals for whom a feeling of being in control of their life and responsible for their actions is very important for their personal fulfillment and, consequently, for their motivation. Implications of Self-Determination theory for the classroom: it may be useful to identify which students in your classes have an internal or external PLOC. In my experience this is not difficult. Once identified the internal PLOC of the target individuals, it is very important to cater for their self-determination needs and grant them a degree of autonomy in and ownership over their learning. E.g.: when staging a reading session in the classroom; carrying out a project; asking students to practise vocabulary online, let them choose how to go about it (whilst setting some guidelines for the sake of consistency). People with high internal PLOC thrive in self-directed learning tasks and contexts; teachers must endeavour to exploit to the fullest this personality trait's greater potential for autonomy in L2 learning. People with a high external PLOC will need more praise, direction from and a sense of accountability to teachers and caretakers. Implications of Intrinsic and Extrinsic motivation theory: Pretty obvious. The main ones: (1) make lessons as enjoyable as possible and make them experience EFFECTANCE regularly in your lessons, as this may help boost their intrinsic motivation; (2) Plan every single one of your lessons with the following questions in mind: 'How can I make sure that every student goes out of my lessons feeling they have progressed?'; (3) foster connectedness in the class by creating a team spirit and a sense that the whole class is working towards the same goal and that every student feels comfortable working with everyone else (e.g. make sure that people do not work with the same partners all the time when staging group work); give plenty of opportunities for positive peer feedback (e.g. get students' to celebrate other students' achievements). (4) Show them the benefits of learning the TL for their future job prospect, personal growth, etc. and of every activity you stage in lessons in terms of learning benefits; use praise as a means to validate their efforts but ensure that you do not over-praise or it will lose its motivational power (most students can sense when you are just trying to bribe them with compliments; this may engender complacency and even loss of motivation in the long-run).

There is a myth circulating amongst some educators these days (including some of my colleagues) that Extrinsic motivation should not be tapped into as a strategy to encourage students to improve. However, there is no sufficient credible evidence that Extrinsic Motivation is detrimental to learning to do away with it; on the contrary, research shows consistently that extrinsic motivation, when not overused and deployed in synergy with some of the other strategies discussed in this post, can eventually bring about Intrinsic motivation. Example: a student that does not enjoy French may, through experiencing a sense of effectance and obtaining consistent (thoroughly deserved and proportionate) praise and rewards become more appreciative of the subject, especially if she is experiencing steady growth in her mastery of the language and feels connected and supported by his peers. It is self-evident that using Extrinsic motivation will work with certain individuals rather than others; hence, as already mentioned, identifying the orientation of their Personal Locus Of Causality (PLOC) is fundamental, prior to carrying out any intervention.

7. VALENCE- INSTRUMENTALITY- EXPECTANCY (VIE) THEORY

In this paradigm, motivation refers to three factors

- Valence: what we think we will get out of a given action/behaviour (what's in it for me?)
- Instrumentality: the belief that if I perform a specific course of action I will succeed (clear path?)
- Expectancy: the belief that I will be definitely able to succeed (self-efficacy)

IMPLICATIONS FOR THE CLASSROOM:

- (1) make clear to students why a specific outcome is desirable (e.g. getting an A/A* at GCSE speaking exams). Make sure you list as many benefits as possible, especially those that most relevant to their personal preferences, interests and life goals;
- (2) provide them with a clear path to get there. This may involve showing them a set of strategies they can use (e.g. autonomously seeking opportunities for practice with native speakers in school) or a **clear** course of action they can undertake which is within their grasp (e.g. talk to your teacher about how to improve your essay writing; identify with their help the two or three main issues; work out with them some strategies to address those issues; monitor with their help through regular feedback and meetings with them that they are working and if they are not why; etc.). A clear path gives a struggling student a sense of empowerment, especially if they feel that they are being provided with effective tips and support to overcome the obstacles in the way;
- (3) support their self-belief that that outcome can be achieved (e.g. by mentioning to them examples of students from previous cohorts of similar ability who did it) and by reminding them of similar/comparable challenges they successfully undertook in the past.

8. GOAL-RELATED THEORY

In order to direct ourselves in our personal, educational and professional life we set ourselves goals. These can be:

- Clear (so we know what to do and what not to do)
- Challenging (so we get some stimulation)
- Achievable (so we do not fail)

If we set goals ourselves, rather than having them imposed on us, we are more likely to work harder in order to achieve them. Moreover, Locke and Kristoff (1996) identified specific and challenging goals as those which are more likely to lead to higher achievement. Implications for the classroom: instead of setting goals for your students in a top-down fashion, involve them actively in the process of learning. Moreover, help the students narrow down the goals set as much as possible and gauge them as accurately as possible to their existing level of competence. E.g.: instead of simply telling a student to check his next essay more accurately next time around and give them a lengthy error checklist, sit down with them and ask them to choose three challenging error categories that they would like to focus on and to aim to attain 80, 90 or even 100% accuracy in those categories in their essay due the following week. Make sure that the knowledge required by the learners to prevent or fix the target errors is learnable and that the students are provided with learning strategies which will assist them in achieving the set goals. I did this in my PhD study with excellent results.

I picked the above theories as they are the ones that I have been using more successfully over 25 years as a classroom teacher and subject leader. It goes without saying that in order to apply them effectively one has to ensure first and foremost that they know and listen to the learners they are dealing with. Cognitive and emotional empathy are a must for the success of any of the above motivational strategies. These strategies work best in synergy rather than in isolation. In a future

post, for instance, I will endeavour to show how attitudinal change may be brought about by using a combination of the above principles to achieve the desired outcomes.

FACTORS THAT MAY AFFECT STUDENTS' ACADEMIC ACHIEVEMENT

Here are some of the factors that may affect a student's academic achievement:

- The support and availability of the parents, their financial situation and standard of living. In Québec, as in other places in the world where the topic is studied, it has been observed that students in socioeconomically disadvantaged areas get lower marks.
- The geographical location of the educational institution.
For example, English as a second language is not learned in the same conditions throughout Québec.
- The percentage of students in a school whose mother tongue is not the language of instruction
- The diversity of student profiles in the same class
- The grouping together, in certain schools, of students with severe learning difficulties, or with problems associated with psychosocial integration in special education classes
- The various practices pertaining to the student admission requirements. Some educational institutions admit students indiscriminately, whereas others select them on the basis of previous academic achievement or their results on aptitude tests.

TEACHER EFFECTIVENESS

To make dramatic improvements in all students' preparation for college and careers, states need thoughtful, intentional human capital strategies that get the right teachers in the right places in the right subjects. The need is especially acute in states that have or plan to adopt college- and career-ready academic standards and graduation requirements: they will need highly effective teachers – particularly in upper-level mathematics and science courses – capable of teaching rigorous content to all students. State policymakers are well aware that the quality of teaching is the most critical school-based factor contributing to student learning, especially for low-income and minority students.¹

The Race to the Top criteria accordingly encourage states to adopt policies to measure the effectiveness of individual teachers and leaders use those measures to inform a range of human capital systems and decisions, ensure an equitable distribution of effective teachers and leaders, and provide high-quality support for educators and principals (see Table 1). If enacted, all of these policies could help a state advance its college and career readiness agenda, since that agenda will require higher and higher levels of teaching quality in order to succeed. But meeting these criteria presents special challenges in the college and career readiness context, especially when it comes to identifying, developing and deploying effective teachers at the high school level. The challenge is particularly great in high school mathematics and science, where research suggests that subject matter expertise is vital for effective teaching.²

The following two sections focus on those special challenges. The first explores what states need to consider in meeting the Race to the Top's teacher effectiveness criteria at the high school level if they are committed to a college- and career-ready agenda. The second asks how states can go beyond RTTT to provide effective instruction in rigorous content to all students, regardless of where they go to school. While the Race to the Top criteria also encourage states to focus on improving leadership, the focus here is on high school teachers because of the specific issues teacher effectiveness poses for the college- and career-ready agenda.

MEETING THE RACE TO THE TOP CHALLENGE:

Effective High School Teachers Measuring Effectiveness. A central tenet of the Race to the Top criteria is that states need viable approaches to measure the effectiveness of teachers, provide an effectiveness rating to each individual teacher, and use those ratings to inform professional development, compensation, promotion, tenure, and dismissal. A state's measure must include multiple inputs, but must include "student growth." Even without Race to the Top criteria, experts and education leaders have increasingly come to see current teacher evaluation methods as inadequate, largely because they fail to differentiate between teachers with varying levels of effectiveness.³ Utilizing data about student growth as part of teacher performance measurement presents technical and political challenges even at the elementary and middle school levels, where states increasingly have assessment and data systems that enable year-to-year tracking of individual student progress.⁴ At the high school level, the challenges are more daunting because, by and large, state assessment systems do not enable this kind of longitudinal tracking of individual student progress from one year to the next. Many states assess high school student mastery through a single cumulative assessment or through a series of end-of-course exams where there is not a clear progression of content from course to course (such as end-of-course exams in Biology and Chemistry). While these assessments may provide valuable information about student achievement, the structure and sequence of states' high school assessment systems may prohibit or make it more challenging to obtain meaningful growth measures.⁵ As states consider how to meet this RTTT criterion at the high school level, they have several options, each of which presents significant but not insurmountable challenges to states. These options include:

Building student-level growth measurement into revised high school assessment systems. Many states will be revising their high school assessment systems as they advance the college- and career-ready agenda and/or compete in the Race to the Top. As they do so, states can design their new systems to measure high school students' progress toward college- and career standards from year to year.

The challenge will be to create a system of assessments with the right sequence and relationship. States pursuing this option would need to design assessments aligned to college- and career-ready end-of-high-school standards, and then design a sequence of assessments taken earlier in high school that share sufficiently related content with the end-of-high-school tests (e.g. end-of-course assessments in Algebra I and Algebra II or English II and English III). School systems would need to report growth results using a metric that allows for meaningful and straightforward interpretations of student progress over time, which could include approaches using common scales, value tables, or growth percentiles.⁶ It is also important to note that this option does limit the proportion of teachers within a high school for whom measures of effectiveness could be calculated, since it may not be possible for states to develop an appropriate sequence of related assessments for teachers of all content areas. • Introducing pre-tests or interim assessments aligned to college- and career-ready standards. States with end-of-course or end-of-grade assessments could design beginning-of-the-year pre-tests to assess students' incoming knowledge, and then generate individual growth scores by comparing pre- and post-test results.

This might seem like an additional burden, but in fact pre-assessment of individual students is likely essential for excellent teaching. States should also consider using interim assessments aligned to college- and career-ready standards and assessments as a method for evaluating individual students' growth towards standards throughout the year.⁷ Such approaches may allow states to

develop measures of teacher effectiveness for content areas in which year-to-year growth measures are not feasible.

MAPPING

. To get the right teachers into the right places in the right subjects, states need a clear picture of the gaps they need to fill. The Race to the Top's premium on improving the distribution of teaching quality to high-poverty schools and hard-to-staff subjects heightens this imperative. The only way to gain this picture is by carefully mapping the quality of teachers currently employed in the state's high schools versus what is needed to meet ambitious college and career readiness goals. Ideally, this mapping would be based on measures of teaching effectiveness rather than on the paper qualifications of teachers, which research suggests are weakly correlated or not correlated with student outcomes.⁹

Since states typically lack real effectiveness measures at the high school level, however, they will have to rely in the short term on the best available proxies which, in secondary schools, are measures of content knowledge such as teachers' scores on content assessments and teachers' college and graduate school course-taking in the content area(s) they are teaching.

A "map" implies a static picture at a point in time, but states should strive to obtain a dynamic view of the teacher quality distribution. It is important to understand the flows of effective teachers in and out of schools, districts, and the state itself: What kinds of schools are gaining or losing effective teachers over time? Mapping teacher effectiveness would require most states to enhance significantly their data systems. A necessary element is a system of teacher identifiers that enables the state to follow teachers as they move from school to school and reliably link them to the results of the students they are teaching.¹⁰

Instituting such a system would also likely require a state to change the reporting it asks districts and schools to do regarding their teacher workforce, to ensure that full data about each teacher's background and current status are part of the system. In some states, leading districts may already have outpaced the state in developing teacher data systems. In such cases, states have an opportunity to partner with those districts to extend their cutting-edge approaches

GUIDANCE IN SCHOOLS: NEEDS, ORGANIZATIONAL SET UP AND TECHNIQUES



The guidance refers to advice or information provided by a person of experience, to solve a problem or improve something. The guidance refers to the process of helping individuals to discover and develop their potential. The need of guidance is something that cannot be ignored by anyone. Furthermore, guidance helps in the development of educational, vocational, and psychological skills in an individual. Most noteworthy, guidance would help an individual to achieve an optimal level of happiness and peace in life. Moreover, an individual who receives proper guidance would surely contribute significantly to society. The concept of guidance is quite democratic in nature. This is because; a properly guided individual would be able to shape his destiny. Guidance ensures that each individual's choices must serve the interests of the society as well as the interest of the individual.

PRINCIPLES OF GUIDANCE

The principles of guidance certainly form the basis of the need of guidance. Furthermore, principles of guidance are important principles without which guidance cannot take place. Below are the principles of guidance: Principle of all-round development- Guidance must take into account the all-round development of the person. Furthermore, guidance must ensure this desirable adjustment in any specific area of the individual's personality. Principle of human uniqueness- Certainly no two individuals are alike. Furthermore, individuals differ in mental, social, physical, and emotional development. Moreover, guidance must recognise these important differences and guide individuals according to their specific need.

Principle of holistic development- This principle states that guidance must take place in the context of total personality development. Moreover, a child grows as a whole. Also, if one aspect of personality is in focus, then the other areas of development must be kept in mind. Most noteworthy, these other areas of development indirectly influence the personality. Principle of cooperation- This

principle states that there cannot be any force on any individual regarding guidance. Moreover, the cooperation and consent of the individual is a pre-requisite for providing guidance.

Principle of continuity- The principle says that the guidance must take place as a continuous process to an individual. Also, this guidance must take place in different stages of the individual's life. Principle of extension- In this principle, there should not be a limitation of guidance to a few individuals. Most noteworthy, the extension of guidance must be to all individuals of all ages. Principle of adjustment- It is certainly true that guidance influences every aspect of an individual's life. However, guidance is chiefly concerned with a person's mental or physical health. Furthermore, this adjustment takes place at school, home, society, and vocation.

NEED OF GUIDANCE

Guidance certainly has an enormous need in every individual's life. Below are some factors which highlight the need for guidance: Different stages of development- The division of an individual's life can take place into various stages. These stages are infant, childhood, pre-adolescent, adolescence and manhood. So, an individual needs guidance in every stage of life. Maximum guidance is required during the adolescence stage. Differences among persons- Psychology inform us that no individuals are alike. Furthermore, no two individuals get similar opportunities in life. Therefore, every individual requires guidance, in order to find out the most suitable profession for him.

Career Maturity- Guidance is certainly essential for the development of a positive work attitude. Furthermore, guidance would help build suitable habits and values towards one's work or profession. This is because; guidance increases the awareness of one's world of work. Also, an individual is able to plan and prepare for his work or profession efficiently due to guidance. Educational growth- Guidance certainly helps in the development of educational skills and abilities. Above all, these skills would facilitate learning and achievement.

WHY SHOULD YOU DEVELOP A STRUCTURE FOR YOUR ORGANIZATION?

- **Structure gives members clear guidelines for how to proceed.** A clearly-established structure gives the group a means to maintain order and resolve disagreements.
- **Structure binds members together.** It gives meaning and identity to the people who join the group, as well as to the group itself.
- **Structure in any organization is inevitable** -- an organization, by definition, implies a structure. Your group is going to have some structure whether it chooses to or not. It might as well be the structure which best matches up with what kind of organization you have, what kind of people are in it, and what you see yourself doing.

WHEN SHOULD YOU DEVELOP A STRUCTURE FOR YOUR ORGANIZATION?

It is important to deal with structure early in the organization's development. Structural development can occur in proportion to other work the organization is doing, so that it does not crowd out that work. And it can occur in parallel with, at the same time as, your organization's growing accomplishments, so they take place in tandem, side by side. This means that you should think about structure from the beginning of your organization's life. As your group grows and changes, so should your thinking on the group's structure.

ELEMENTS OF STRUCTURE

While the need for structure is clear, the best structure for a particular coalition is harder to

determine. The best structure for any organization will depend upon who its members are, what the setting is, and how far the organization has come in its development. Regardless of what type of structure your organization decides upon, three elements will always be there. They are inherent in the very idea of an organizational structure. They are:

- Some kind of governance
- Rules by which the organization operates
- A distribution of work

GOVERNANCE

The first element of structure is governance - some person or group has to make the decisions within the organization.

RULES BY WHICH THE ORGANIZATION OPERATES

Another important part of structure is having rules by which the organization operates. Many of these rules may be explicitly stated, while others may be implicit and unstated, though not necessarily any less powerful.

DISTRIBUTION OF WORK

Inherent in any organizational structure also is a distribution of work. The distribution can be formal or informal, temporary or enduring, but every organization will have some type of division of labor. There are four tasks that are key to any group:

- Envisioning desired changes. The group needs someone who looks at the world in a slightly different way and believes he or she can make others look at things from the same point of view.
- Transforming the community. The group needs people who will go out and do the work that has been envisioned.
- Planning for integration. Someone needs to take the vision and figure out how to accomplish it by breaking it up into strategies and goals.
- Supporting the efforts of those working to promote change. The group needs support from the community to raise money for the organization, champion the initiative in the state legislature, and ensure that they continue working toward their vision.

COMMON ROLES

Every group is different, and so each will have slightly different terms for the roles individuals play in their organization, but below are some common terms, along with definitions and their typical functions.

- An initial steering committee is the group of people who get things started. Often, this group will create plans for funding, and organizational and board development. It may also generate by-laws, and then dissolve. If they continue to meet after approximately the first six months, we might say they have metamorphosed into a coordinating council.
- A coordinating council (also referred to as a coordinating committee, executive committee, and executive council), modifies broad, organization-wide objectives and strategies in response to input from individuals or committees.
- Often, one person will take the place of the coordinating council, or may serve as its head. Such a person may be known as the Executive Director, Project Coordinator, Program

Director, or President. He or she sometimes has a paid position, and may coordinate, manage, inspire, supervise, and support the work of other members of the organization.

- Task forces are made up of members who work together around broad objectives. Task forces integrate the ideas set forward with the community work being done. For example, from the director of a coalition to reduce violence in a medium-sized city: "Currently, we have three operational task forces. Members of each have an ongoing dialogue with members of the coordinating council, and also with their action committees. The oldest was formed with the goal of eliminating domestic violence about fifteen years ago, when a local woman was killed by her husband. Then, after several outbreaks of violence in the schools a few years back, our group offered to help, and a second task force sprung up around reducing youth violence. We've just started a third, with the goal of increasing gun safety. 'Cause, you know, the strategies you use to stop a ninth grader from bringing a gun to school just aren't the same as the ones you use to stop a 40-year-old man on unemployment from beating his wife."

- Action committees bring about specific changes in programs, policies, and practices in the sectors in which they work.

For example, the task force on domestic violence mentioned above has the following action committees:

- A government and law enforcement committee. Members include police officers, lawyers, a judge, and a state representative. Currently, they are trying to pass laws with stronger penalties for those convicted of domestic violence, especially repeat offenders. They are also training officers to be better able to spot an abusive relationship, and better able to inform a victim of his or her options.
- A social services committee. Members (who include representatives from most of the service agencies in town) work to assure that staff members know where to send someone for the resources he or she needs. They are also trying to increase the number of trained volunteer counselors who work at the battered women's shelter.
- A media committee. Members include local journalists, writers, and graphic designers. They keep the project and the issue in the public's minds as much as possible with editorials, articles and news clips of events, as well as advertisements and public service announcements.
- Support committees are groups that help ensure that action committees or other individuals will have the resources and opportunities necessary to realize their vision. Financial and media committees are examples of committees formed to help support or facilitate your work.
- Community trustees, also known as the board of trustees or as the board of directors, provide overall support, advice, and resources to members of the action groups. They are often either people who are directly affected by the issue or have stature in the community. That way, they are able to make contacts, network with other community leaders, and generally remove or weaken barriers to meeting organizational objectives.
- Grantmakers are another part of the picture. Grantmakers exist on an international, national, state, and local level and may be private companies and foundations, or local, county, state, or federal government organizations (for example, block grants given by the city would fall into this category).
- Support organizations (not to be confused with the support committees listed above) are groups that can give your organization the technical assistance it needs.
- Partner organizations are other groups working on some of the same issues as your organization. Although this list is pretty extensive, your organization may only use two or three of the above

mentioned roles, especially at the beginning. It's not uncommon for a group to start with a steering committee, ask others to serve as board members, and then recruit volunteers who will serve as members of action committees. In this broad spectrum of possibilities, consider: Where does your organization fit in? Where do you want to be?

EXAMPLES OF STRUCTURE

So how can all of these pieces be put together? Again, the form a community group takes should be based on what it does, and not the other way around. The structures given are simply meant to serve as examples that have been found to be effective for some community-based organizations; they can and should be adapted and modified for your own group's purposes.

A RELATIVELY COMPLEX STRUCTURE

EXAMPLE - THE STE. GENEVIEVE'S CHILDREN'S COALITION

The Ste. Genevieve's Children's Coalition is a relatively large community-based group. They have a coordinating council, a mediacommittee, and three task forces, dealing with adolescent pregnancy, immunization, and child hunger. Each of the task forces has action committees as well. For example, the adolescent pregnancy reduction task force has a schools committee that focuses on keeping teen parents in school and modifying the humansexuality curriculum. A health organizations committee focuses on increasing access and use of the youth clinic. The media committee works to keep children's issues in the news, and includes professionals from the local television stations, radio stations, newspaper, and a marketing professional. The coordinating council is composed of the executive director, her assistant, the mediacommittee chair, and the chairs of each of the three task forces. A board of directors has been invaluable in helping keep the coalition financially viable.

COUNSELLING: PROCESS, SKILLS, AND TECHNIQUES

(ACA), professional counseling is the process of building relationships with individuals that empower them to accomplish mental health and wellness, education, and career goals. It is a collaborative relationship between the counselor and their client.

Professional counseling can take the form of:

- Individual counseling is the most common type of counseling that focuses on the growth and mental health of an individual.
- Couples or marriage counseling focuses on assisting couples in overcoming conflict and working towards a stronger relationship.
- Family counseling involves the different familial dynamics and how they affect the family structure.
- Group counseling is the use of group interaction to facilitate growth.

When you become a counselor, you are likely to engage in many of these types of counseling throughout your therapeutic work. The Process of Counseling following components.

Opening: The opening process is perhaps, one of the most important parts of the interaction with your client. It is your chance to get to know your client and for them to get to know you. It is also where you will set the tone for the rest of the therapeutic relationship.

Exploring Client Understanding: The exploration process is where you will begin to understand your client. You will explore their past and evaluate their current concerns. Here, you will together establish goals and set expectations.

Understanding: Important in developing a strong relationship with your client, you can demonstrate understanding by using verbal and nonverbal cues, as well as reflections and paraphrases.

Intervention: The intervention process is about choosing the appropriate counseling techniques that will encourage growth within your client.

Exploring Problems: Exploration is the process of learning more about your client and why they have come to counseling. Exploration is necessary in truly understanding a client's thoughts and feelings in relation to their pressing problem.

Empower to Create Own Solutions: Empowering your client is not about providing them with all the answers. It is about empowering them, with your counseling skills, to find their own solutions. Counseling Skills As a student, your master's degree in counseling is about developing and expanding upon the counseling skills that will best help your clients. These are some of the most important counseling techniques you are likely to use in your counseling sessions.

Listening/Observing: Listening is one of the most valuable counseling skills in the therapeutic relationship. It can be used in three ways:

- **Attending:** Attending is the ability to be physically present for the client. It means giving them your undivided attention and making appropriate eye contact, mirroring body language, and nodding. These attending behaviors show your client that you care. In fact
- **Active listening:** Active listening occurs when you are listening with all of your senses. According to the , active listening involves listening with your body, heart, ears, eyes, and mouth.
- **Verbal listening:** This is a form of showing you are listening through the words that you use.. This can be as simple as 'yes', or 'go on'. It can also be in the form of paraphrasing or repeating a word of emotion that the client has just said.

Asking Questions: Questions are helpful in the therapeutic environment because they allow you to learn more about your client. The type of questions that you ask will set the tone of the session and the entire counseling process. Questions occur in two forms.

- **Closed:** A closed question is the practice of asking a question that can be answered as a 'yes' or 'no'. Closed questions should generally be avoided in the counseling relationship, as they do not encourage deeper exploration.
- **Open:** An open question is necessary to gather information. An open question is one that cannot be answered with a simple 'yes' or 'no' and it requires reflection or exploration on the client's end. Every open question should be intentional and therapeutic.
- **Feelings reflections:** Reflections allow clients to hear the feelings they have just expressed. Sometimes you have to look for the descriptive feeling in a client's statement. It can also be helpful to look at a client's nonverbal feeling cues.
- **Restating/Rephrasing:** Restating and rephrasing can build a stronger client therapist relationship. Rephrasing a client's statement allows you to better understand what a client has just said and to gain further clarity, if you have gotten it wrong.
- **Affirmation:** Affirmation is a form of encouragement that is used to affirm behaviors or life choices. Affirmation is important for empowering clients [External link](#) . A few common affirmations include affirming progress that a client has made toward a goal or encouraging a client to

do what is important to them.

Empathy: Empathy is the ability to put yourself in someone else's shoes. It is much more than sympathy in that you are able to show your understanding of your clients' feelings surrounding an experience.

Genuineness: Being genuine is creating congruence between yourself and your words. Every therapist is different and will provide a different therapeutic process. It is important to remain genuine in all counseling techniques and verbal and nonverbal cues.

Unconditional Positive Regard: Demonstrating unconditional positive regard. External link is the idea of accepting your client for who they are. It is a means of expressing warmth and respect.

Counselor Self-Disclosure: This is a tricky counseling skill to maneuver. A general rule to follow is to only share personal information that is beneficial to the therapeutic process. It might also be used to help the counselor relate better with their client.

COUNSELING THEORIES

Counseling theories. External link are used as a guideline for understanding human nature and to determine which counseling skills you will use in your counseling sessions.

- **Psychoanalytic Theory:** This theory was originally developed by Sigmund Freud. It supports the idea that unconscious forces drive human actions. A psychoanalytic therapy session includes skills such as dream analysis, free association, resistance analysis, and transference analysis. Much of the personality is thought to have developed in childhood and similarities are identified and explored in the therapeutic relationship.
- **Person-Centered Therapy:** This theory is a form of psychotherapy originally developed by Carl Rogers. Sometimes also known as Rogerian therapy, it operates on the assumption that every human being has the ability to fulfill their full potential. A client-centered approach in the therapeutic relationship involves self-actualization, empathy, and unconditional positive regard. When practicing person-centered therapy, the client-therapist relationship is very important because the positive interactions are a form of therapy themselves. The relationship should be supportive and the therapist acts more as a guide, as the client is the expert of their own life.
- **Cognitive Behavioral Therapy (CBT):** CBT is a shorter term approach. External link to the therapeutic process. This hands-on approach lends its practice to the theory that human problems stem from faulty patterns of thinking. The counseling process primarily involves the challenge of automatic thinking and often negative thought patterns. It encourages the client to find logic in their way of thinking. The counselor plays an important role in challenging these thoughts.
- **The Family Systems Model:** Family Systems view all human troubles and conflicts as a familial unit. The theory, originally developed by Murray Bowen, is focused on the idea that family is the primary source of emotions and personality. A family system can be present in many forms, including structural, strategic, and intergenerational. Common techniques used in the therapeutic process include the creation of a genogram, family projection activities, emotional triangles, and the differentiation of self. This counseling theory is often used in marriage and family counseling sessions. Counseling is about creating strong relationships with your clients that will empower

them to obtain mental health and to fulfill their goals. Through the use of intentional counseling techniques and an understanding of human nature developed through counseling theories, you can guide your client in reaching optimal mental health.

EFFECTIVE COUNSELLING SKILLS

Counsellors use counselling skills to help them better understand and listen to clients. Through **active listening**, rapport is built, trust forms and the speaker feels heard and understood by the counsellor or listener. Core Counselling Skills Core listening skills are basic counselling skills, or practiced techniques, that help the counsellor to empathetically listen to the speaker.

Skills include:

- active listening
- being aware of nonverbal communication
- building rapport

The core counselling skills are described below.

1. Attending

Attending in counselling means being in the company of someone else and **giving that person your full attention**, to what they are saying or doing, valuing them as worthy individuals.

2. Silence

Silence in counselling gives the client control of the content, pace and objectives. This includes the counsellor listening to silences as well as words, sitting with them and recognising that the silences may facilitate the counselling process.

3. Reflecting and Paraphrasing

Reflecting in counselling is part of the 'art of listening'. It is making sure that the client knows their story is being listened to. This is achieved by the helper/counsellor by both **repeating and feeding a shorter version of their story back to the client**. This known as '**paraphrasing**'.

4. Clarifying and the Use of Questions

Questions in counselling are classed as a basic skill. The counsellor uses open questions to clarify his or her understanding of what the client is feeling. **Leading questions are to be avoided** as they can impair the counselling relationship.

5. Focusing

Focusing in counselling involves making decisions about what issues the client wants to deal with. The client may have mentioned a range of issues and problems and focusing allows the counsellor and client together to clear away some of the less important surrounding material and **concentrate on the central issues** of concern.

6. Building Rapport

Building rapport with clients in counselling is important, whatever model of counselling the counsellor is working with.

Rapport means **a sense of having a connection with the person**.

7. Summarising

Summaries in counselling are longer paraphrases. They **condense or crystallise the essence of what the client is saying and feeling**. The summary 'sums up' the main themes that are emerging.

8. Immediacy

Using immediacy means that the therapist reveals how they themselves are feeling in response to the client.

According to Feltham and Dryden (1993: 88), immediacy is 'the key skill of focusing attention on the here and now relationship of counsellor and client with helpful timing, in order to challenge defensiveness and/or heighten awareness'. Counseling Skills and Techniques Types of Counseling and Techniques Counselors must possess in-depth knowledge and skills if they are to help clients effectively. On the job, these professionals use a specific set of counseling skills to treat one or more unique populations. These counseling techniques may vary depending on which group of people a counselor serves (e.g., Counseling techniques appropriate for school counselors may not work for grief counselors.). In a master's program, counselors-in-training hone skills through practica and supervised work experience.

HOW DO DIFFERENT MENTAL HEALTH PROFESSIONS' SKILLS STACK UP?

All mental health professionals possess similar skills. In graduate-level counseling programs, all counselors-in-training first master a standard skill set. Only after specializing in a particular counseling subfield (e.g., addiction counseling, school counseling, etc.) do they begin to explore new skills that can help their future clients.

COUNSELOR VS THERAPIST SKILLS

On the job, counselors and therapists share many similar duties. Also, professionals in both careers typically possess master's degrees. However, therapists (e.g., marriage and family therapists) have a more honed skill set when it comes to interpreting clinical research. Also, unlike counselors, therapists play a more significant role in helping clients develop solutions to problems.

COUNSELOR VS PSYCHOLOGIST SKILLS

Although some psychologists possess a master's degree, many earn a doctorate, especially if they plan to teach psychology at the college level. On the job, they review the latest research to find new ways to treat clients, a task few counselors undertake. Psychologists also possess honed research and analytical skills, a boon if they plan to contribute original research to the psychology field.

COUNSELOR VS PSYCHIATRIST SKILLS

Psychiatrists possess the most advanced skill set of all mental health professionals. They first earn a medical degree before completing a residency in psychiatry. In addition to applying the interpersonal skills that psychologists and counselors possess, they use their pharmacological knowledge to prescribe medication when necessary. .

COUNSELOR VS SOCIAL WORKER SKILLS

Although social workers and counselors help clients in similar ways, social workers must have the collaborative and interpersonal skills necessary to research and provide community resources. For

example, a school social worker who believes that a child lives in an unsafe environment must coordinate with law enforcement and child protective services, among other relevant government agencies.

5 SKILLS EVERY COUNSELOR SHOULD POSSESS

- 1. Communication Skills:** An excellent counselor can convey information in a concise way that ensures that a client understands the counselor's concerns, advice, etc. This way, a client can leave a session without feeling confused and assured that the counselor answered all of his or her questions.
- 2. Listening and Attending:** Counselors need more than excellent listening and comprehension skills. During a session with a client, counselors must also project that they have a vested and genuine interest in the client's well being. They do this by making eye contact and using appropriate body language - counseling skills and techniques that also apply to the psychiatry and therapy fields.
- 3. Focusing and Paraphrasing:** When a client first meets with a counselor, he or she may not know their problems' root cause(s). The counselor must identify the client's issues and help the client decide which are causing the most harm. This way, the counselor and client can focus on those issues and develop solutions.
- 4. Validating and Challenging:** As counselors provide mental health services, they must make clients feel validated - that it is normal to feel upset, nervous, angry, etc. However, counselors must also challenge clients to adopt actions or mindsets that go against these feelings, ones that clients may not want to give up. Effective challenging requires excellent interpersonal and diplomatic skills.
- 5. Multicultural Competencies:** Counselors, especially guidance and school counselors, must possess multicultural competencies. In other words, a counselor should understand how a client's racial, cultural, and socioeconomic background affects them. Counselors can use this knowledge to better empathize with clients, gain their trust, and develop effective solutions.

MENTAL HEALTH COUNSELING TECHNIQUES

To make counseling effective, counselors must not only master counseling skills and techniques but also understand the different theories that guide mental health professionals. Comprehensive online master's in mental health counseling programs typically emphasize the following four theories - their history, impact, and continued relevance.

1. BEHAVIORAL THEORY

Behavioral theory explains people's behavior by examining life experiences. Psychologist B.F. Skinner was an advocate for behavioral theory, as he showed through animal testing that conditioning could affect behavior significantly. In a modern context, a behaviorist might argue that someone possesses violent tendencies because that person suffered physical abuse as a child.

2. COGNITIVE THEORY

Instead of focusing on actions, cognitive theory examines how people's thoughts influence their behavior. In a clinical setting, psychologists and psychiatrists use talk therapy to help clients identify and remedy negative thoughts. For example, a client who can verbalize his or her flying anxiety can begin to develop new, positive thought patterns that reduce stress.

3. HUMANISTIC THEORY

After the Second World War, many mental health professionals turned away from traditional behavioral and cognitive theories. Humanistic theory assumes that people are good and desire agency over their own lives. Counselors who use humanistic theory focus on clients' subjective feelings and use those feelings as a way to treat underlying problems.

4. INTEGRATIVE THEORY

As the name suggests, integrative theory synthesizes behavioral, cognitive, and humanistic theories, among others. Professionals who use integrative theory analyze clients' mental health needs from different viewpoints and also consider how age and life experience can guide treatment. Finally, integrative theory focuses less on finding a mental health 'cure.' Rather, professionals help clients improve as much as they can.

SCHOOL COUNSELING TECHNIQUES

School counselors possess a variety of techniques/skills that allow them to help students, collaborate with faculty, and implement new district- and school-level policies. In online master's in school counseling programs, students begin developing these skills before honing them in school settings (e.g., a practicum). However, many professionals do not master these skills until after they have acquired significant on-the-job experience.

1. PROBLEM-SOLVING AND CONFLICT RESOLUTION

Without much life experience to pull from, primary and secondary school students lack developed problem-solving and conflict resolution skills (e.g., dealing with a bully, student-teacher conflict, etc.). As a result, counselors must help students identify and remedy problem behavior. When more than one student is involved, counselors use small-group counseling techniques.

2. GROUP COUNSELING THEORIES

Group counseling has many advantages in the school setting. One, it brings together students who may share a similar problem or were part of a conflict. Group counseling can also promote empathy among students. Finally, group counseling allows a counselor to help many students at once, freeing up more time for other responsibilities and tasks.

3. SPECIAL NEEDS COUNSELING

Students with special needs (e.g., ADD, ADHD, Autism-spectrum disorder, etc.) require highly trained counselors who can promote their academic success while working within the context of the disability. Counselors-in-training must examine the latest research and work with students with disabilities. On the job, counselors collaborate with parents, administrators, and faculty to ensure that students with disabilities receive the best education possible.

IMPACT OF EFFECTIVE COUNSELING TECHNIQUES

Effective counseling can make a significant, positive impact on clients' lives. Some positive outcomes might include:

- Better decision making
- Coping skills
- Improved outlook on life
- Ability to plan for the future (e.g., college and careerpreparedness)
- Improve socialization with peers, teachers, and family
- Engagement with extracurricular activities

Human Development and Interventions MCQs

1. In Operant conditioning procedure, the role of reinforcement is:
 - (a) Strikingly significant
 - (b) Very insignificant
 - (c) Negligible
 - (d) Not necessary
 - (e) None of the aboveAnswer: A

2. According to Skinnerian Operant conditioning theory, a negative reinforcement is:
 - (a) Nothing but punishment
 - (b) A biofeedback
 - (c) A withdrawing or removal of a positive reinforcer
 - (d) An instinctive drift
 - (e) None of the aboveAnswer: C

3. Behaviour therapists believe that the respondent or classical conditioning is effective in dealing with the non-voluntary automatic behaviour, whereas the operant one is successful predominantly with motor and cognitive behaviours, Thus, unadaptive habits such as nail biting, trichotillomania, enuresis encopresis, thumb sucking etc. are satisfactorily dealt within the :
 - (a) Classical Method
 - (b) Operant Method
 - (c) Trial and Error Method
 - (d) Insightful learning procedure
 - (e) None of the aboveAnswer: B

4. Current positive reinforcement requires the individual to imagine performing a particular task or behaviour followed by a:
 - (a) Negative consequence
 - (b) Zero consequence
 - (c) Positive Consequence
 - (d) Neutral consequence
 - (e) None of the aboveAnswer: C

5. Aversion is one of the conditioning procedures used in:
 - (a) Non-directive therapy
 - (b) Psychoanalytic therapy
 - (c) Behaviour therapy
 - (d) Chemotherapy

(e) None of the above
Answer: C

6. A very useful principle of learning is that a new response is strengthened by:

(a) Punishment

(b) Reinforcement

(c) Biofeedback

(d) Discriminative Stimulus

(e) None of the above
Answer: B

7. In continuous reinforcement schedule (CRF), every appropriate response:

(a) Is reinforced

(b) Is not reinforced

(c) Is sometimes reinforced

(d) Is an instinctive drift

(e) None of the above
Answer: A

8. The continuous reinforcement schedule is generally used:

(a) In the last part of training

(b) In early stages of training

(c) In the middle period of training

(d) In both last and first part of training

(e) None of the above
Answer: B

9. In real life, reinforcement of every response (CRF) is:

(a) Of the nature of an exception rather than the rule

(b) Impossible

(c) Necessary

(d) Not necessary

(e) None of the above
Answer: A

10. Which schedule of reinforcement is a ratio schedule stating a ratio of responses to reinforcements?

(a) Variable Ratio Schedule

(b) Fixed Interval Schedule

(c) Variable Interval Schedule

(d) Fixed Ratio Schedule

(e) None of the above
Answer: D

11. Respondents are elicited and operants are not elicited but they are:

(a) Emitted spontaneously

- (b)** Emitted voluntarily
 - (c)** Permanent responses
 - (d)** Temporary responses
 - (e)** None of the above Answer: A
- 12.** In which schedule of reinforcement, appropriate movements are reinforced after varying number of responses?
- (a)** Fixed Ratio Schedule
 - (b)** Fixed Interval Schedule
 - (c)** Variable ratio Schedule
 - (d)** Variable Interval Schedule
 - (e)** None of the above Answer: C
- 13.** Which schedule of reinforcement does not specify any fixed number, rather states the requirement in terms of an average?
- (a)** Variable Ratio Schedule
 - (b)** Fixed Ratio Schedule
 - (c)** Fixed Interval Schedule
 - (d)** Variable Interval Schedule
 - (e)** None of the above Answer: A
- 14.** As a rule, variable ratio schedule (VR) arrangements sustain:
- (a)** Low rates of responding
 - (b)** High rates of responding
 - (c)** Zero responding
 - (d)** 90% of responding
 - (e)** None of the above Answer: B
- 15.** Under conditions of variable ratio schedule, the only sensible way to obtain more reinforcements is through emitting:
- (a)** 50% responses
 - (b)** 90% responses
 - (c)** Less number of responses
 - (d)** Greater number of responses
 - (e)** None of the above Answer: D
- 16.** In which schedule of reinforcement, the experimenter (E) reinforces the first correct response after a given length of time?
- (a)** Fixed Ratio Schedule
 - (b)** Fixed Interval Schedule

- (c) Variable Ratio Schedule
 - (d) Variable Interval Schedule
 - (e) None of the above Answer: B
- 17.** In our daily life, watching for the pot of milk to boil may be somewhat similar to the behaviour pattern observed in:
- (a) Fixed Interval Schedule
 - (b) Fixed Ratio Schedule
 - (c) Variable Ratio Schedule
 - (d) Variable Interval Schedule
 - (e) None of the above Answer: A
- 18.** In which schedule of reinforcement, the delay intervals vary as per a previously decided plan?
- (a) Fixed Ratio Schedule
 - (b) Variable Ratio Schedule
 - (c) Fixed Interval Schedule
 - (d) Variable Interval Schedule
 - (e) None of the above Answer: D
- 19.** In our daily life, any kind of looking for things which occur without any reference to our behaviour may illustrate the application of:
- (a) Variable Interval Schedule
 - (b) Fixed Ratio
 - (c) Variable Ratio Schedule
 - (d) Fixed interval Schedule
 - (e) None of the above Answer: A
- 20.** In case of continuous reinforcement, we get the least resistance to extinction and the:
- (a) Highest response rate during training
 - (b) 50% response rate during training
 - (c) Smallest response rate during training
 - (d) 90% response rate during training
 - (e) None of the above Answer: C
- 21.** The expression "Contingencies of reinforcement" occurs frequently in:
- (a) Operant Conditioning Literature
 - (b) Classical Conditioning Literature
 - (c) Trial and Error Learning Literature
 - (d) Latent Learning Literature
 - (e) None of the above Answer: C

- 22.** Who elucidates the contiguity theory of reinforcement in the most pronounced and consistent manner?
- (a) C. Hull
 - (b) Guthrie
 - (c) Tolman
 - (d) Mc Dougall
 - (e) J. B. Watson
- Answer: B
- 23.** In comparison with drive- reduction or need- reduction interpretation, stimulus intensity reduction theory has an added advantage in that:
- (a) It offers a unified account of primary and learned drives as also of primary and conditioned reinforcement
 - (b) It has some mathematical derivations which are conducive for learning theorists
 - (c) All learning theories can be explained through this
 - (d) None of the above
- Answer: A
- 24.** Who preferred to call Classical Conditioning by the name of "Sign Learning"?
- (a) I. P. Pavlov
 - (b) Mowrer
 - (c) Miller
 - (d) Guthrie
 - (e) J. B. Watson
- Answer: B
- 25.** Which type of learning tells us what to do with the world and applies to what is commonly called habit formation?
- (a) Insightful Learning
 - (b) Latent Learning
 - (c) Trial and Error Learning
 - (d) Instrumental Learning
 - (e) Classical Conditioning
- Answer: D
- 26.** Who propounded the expectancy theory of learning?
- (a) Guthrie
 - (b) C. Hull
 - (c) Tolman
 - (d) Thorndike
 - (e) I. P. Pavlov
- Answer: C
- 27.** Who said that any act is a movement but not vice versa?
- (a) J.B. Watson
 - (b) W. Kohler
 - (c) Guthrie

- (d) E. L. Thorndike
- (e) C. Hull

28. Guthrie believed that conditioning should take place:

- (a) After two trials
 - (b) After three trials
 - (c) After a single trial
 - (d) After ten trials
 - (e) None of the above
- Answer: C

29. According to Guthrie, forgetting is not a matter of decay of old impressions and associations but:

- (a) A result of inhibition of old connections by new ones
 - (b) A result of disinhibitions of old connections
 - (c) A result of generalizations of stimuli
 - (d) A result of discrimination
 - (e) None of the above
- Answer: A

30. The great learning theorist, Clark Hull was influenced by the moderate wing of:

- (a) Gestalt Psychology
 - (b) Behaviouristic Orientation
 - (c) Psychoanalytic Literature
 - (d) Logical Positivism and by conventionalism
 - (e) None of the above
- Answer: D

31. Who defined "Need" as a state of the organism in which a deviation of the organism from the optimum of biological conditions necessary for survival takes place?

- (a) Mc Dougall
 - (b) Clark H. Hull
 - (c) E.L Thorndike
 - (d) I.P. Pavlov
 - (e) None of the above
- Answer: B

32. According to Hullian theory, under the pressure of needs and drives, the organism undertakes:

- (a) Adaptive actions
- (b) Learning by foresight
- (c) Learning by hindsight
- (d) Transfer of training

(e) None of the above Answer: A

33. Hull believes that no conditioning will take place unless there is:

(a) Food

(b) Need Reduction

(c) Puzzle Box

(d) Secondary Reinforcement

(e) None of the above Answer: B

34. Who defined stimulus (S) in terms of physical energy such as mechanical pressure, sound, light etc.?

(a) E. L. Thorndike

(b) W. Kohler

(c) B. F. Skinner

(d) Clark Hull

(e) E. C. Tolman Answer: D

35. "Where a reaction (R) takes place in temporal contiguity with an afferent receptor impulse (S) resulting from the impact upon a receptor of a stimulus energy (S) and the conjunction is followed closely by the diminution in a need and the associated diminution in the drive, D, and in the drive receptor discharge, S_D , there will result in increment, A ($S \rightarrow R$), in the tendency for that stimulus on subsequent occasions to evoke that reaction".

Who has given the above definition of "reinforcement"?

(a) Clark L. Hull

(b) E. L. Thorndike

(c) I.P. Pavlov

(d) W. Kohler

(e) None of the above Answer: A

36. Most of Hull's explanations are stated in two languages, one of the empirical description and the other in:

(a) Psycho physiological terms

(b) Neurophysiological terms

(c) Physiological terms

(d) Physical terms

(e) None of the above Answer: B

37. The molar approach deals with the organism as a whole, the molecular approach:

(a) Deals with parts

(b) Deals with stimuli

(c) Deals with responses

- (d) Has nothing to do with theorganism
(e) Deals with the detailed, fine and exact elements of action of the nervous system Answer: E
- 38.** The hypothetico-deductive system in geometry was developed by:
(a) I.P. Pavlov
(b) B. L. Thorndike
(c) C. Hull
(d) Pieri
(e) E. C. Tolman Answer: D
- 39.** Whenever behaviour is correlated to specific eliciting stimuli, it is:
(a) Respondent Behaviour
(b) Operant Behaviour
(c) Stimulant Behaviour
(d) Fixed Behaviour
(e) Static Behaviour Answer: A
- 40.** Whenever behaviour is not correlated to any specific eliciting stimuli, it is:
(a) Respondent Behaviour
(b) Operant Behaviour
(c) Static Behaviour
(d) Modified Behaviour
(e) None of the above Answer: B
- 41.** According to Tolman, docile or teachable behaviour is:
(a) Molar
(b) Molecular
(c) Respondent
(d) Operant
(e) None of the above Answer: A
- 42.** According to Skinnerian theory, the "S" type of conditioning applies to:
(a) Modified Behaviour
(b) Stimulant Behaviour
(c) Operant Behaviour
(d) Respondent Behaviour
(e) None of the above Answer: D

- 43.** The sign-gestalt expectation represents a combination of:
- (a) Intelligence and Perception
 - (b) Perception and Learning
 - (c) Intelligence and Learning
 - (d) Perception and Motivation
 - (e) None of the above
- Answer: D
- 44.** Who stated that appetites and aversions are “states of agitation”?
- (a) E. L. Thorndike
 - (b) E. C. Tolman
 - (c) W. Kohler
 - (d) Clark Hull
 - (e) None of the above
- Answer: B
- 45.** Who said that the ultimate goal of aversion is the state of physiological quiescence to be reached when the disturbing stimulus ceases to act upon the organism?
- (a) E. L. Thorndike
 - (b) W. Kohler
 - (c) E. C. Tolman
 - (d) Clark Hull
 - (e) None of the above
- Answer: C
- 46.** According to E. C. Tolman, there are two aversions: fright and pugnacity. Fright is avoidance of injury and pugnacity is avoidance of:
- (a) Interference
 - (b) Affiliation
 - (c) Motivation
 - (d) Perception
 - (e) None of the above
- Answer: A
- 47.** “Equivalence Belief’ is a connection between” a positively cathected type of disturbance-object and a type of what may be called:
- (a) An interfering object
 - (b) A sub disturbance object
 - (c) A motivating object
 - (d) A goal-oriented object
 - (e) None of the above
- Answer: B
- 48.** Who revealed that “Field expectancy” takes place when one organism is repeatedly and

successfully presented with a certain environmental set-up?

- (a) E. C. Tolman
 - (b) C. L. Hull
 - (c) E. L. Thorndike
 - (d) I.P. Pavlov
 - (e) Guthrie
- Answer: A

49. Dollard and Miller related Thorndike's spread of effect to the:

- (a) Gradient of reinforcement
 - (b) Biological constraints
 - (c) Principle of preparedness
 - (d) None of the above
- Answer: A

50. Miller and Dollard are more concerned with:

- (a) Biological factor in learning
 - (b) Social factor in learning
 - (c) Physiological and Social factors in learning
 - (d) Personal factors in learning
 - (e) None of the above
- Answer: B

51. Mowrer's Sign learning comes close to Guthrie's contiguity and his 'solution learning' corresponds to:

- (a) Pavlov's Classical Conditioning
 - (b) Kohler's Insightful learning
 - (c) Skinner's instrumental learning
 - (d) Thorndike's trial and error learning
 - (e) None of the above
- Answer: C

52. Mowrer's two-factor theory takes into consideration the fact that:

- (a) Some conditioning do not require reward and some do
 - (b) Every conditioning requires reinforcement
 - (c) The organism learns to make a response to a specific stimulus
 - (d) Learning is purposive and goal-oriented
 - (e) None of the above
- Answer: A

53. When learning in one situation influences learning in another situation, there is evidence of:

- (a) Avoidance learning
- (b) Learned helplessness
- (c) Premise of Equipotentiality
- (d) Transfer of Training

(e) None of the above Answer: D

54. If learning in situation 'A' may favourably influence learning in situation 'B', then we have:

(a) Positive Transfer

(b) Negative Transfer

(c) Zero Transfer

(d) Bilateral Transfer

(e) Neutral Transfer Answer: A

55. If learning in situation 'A' has a detrimental effect on learning in situation 'B', then we have:

(a) Positive Transfer

(b) Zero Transfer

(c) Neutral Transfer

(d) Negative transfer

(e) None of the above Answer: D

56. Mediation occurs when one member of an associated pair is linked to the other by means of:

(a) A reinforcement

(b) An intervening element

(c) Generalization

(d) Secondary reinforcement

(e) None of the above Answer: B

57. Zero transfer is otherwise known as:

(a) Neutral Transfer

(b) Positive Transfer

(c) Negative Transfer

(d) Bilateral Transfer

(e) None of the above Answer: A

58. Negative Transfer of Training is otherwise known as:

(a) Neutral Transfer

(b) Habit interference

(c) Zero Transfer

(d) Bilateral Transfer

(e) None of the above Answer: B

59. "If you do not like milk, you may not like all milk products like cheesebutter, ghee and curd". This is due to:

(a) Generalization Gradient

- (b)** Avoidance Learning
 - (c)** Biological Constraints
 - (d)** Transfer of Training
 - (e)** None of the above Answer: D
- 60.** Who told, "Although Classical Conditioning is a laboratory procedure, it is easy to find real world examples."?
- (a)** B.J. Underwood (1983)
 - (b)** G. H. Bower (1976)
 - (c)** C. B. Osgood (1957)
 - (d)** Kimble and Germazy (1980)
 - (e)** Mc Geoch (1942) Answer: D
- 61.** According to Hull, a systematic behaviour or learning theory can be possible by happy amalgamation of the technique of conditioning and the:
- (a)** Law of Effect
 - (b)** Law of Exercise
 - (c)** Law of Frequency
 - (d)** Law of Recency
 - (e)** None of the above Answer: A
- 62.** The methods of verbal learning are important because:
- (a)** The use of standard methods for learning makes comparisons of results possible
 - (b)** Rewards are not necessary here
 - (c)** They minimise the effect of punishment
 - (d)** Punishment has no effect on learning
 - (e)** None of the above Answer: A
- 63.** Positive transfer of training is possible with:
- (a)** Dissimilar tasks
 - (b)** Motor tasks
 - (c)** Similar tasks
 - (d)** Verbal tasks
 - (e)** None of the above Answer: C
- 64.** A 'Skinner Box' is used for:
- (a)** Motor learning
 - (b)** Verbal learning
 - (c)** Sensory learning
 - (d)** Problem Solving

(e) Incidental learning
Answer: D

65. Punishment is effective only when it weakens:

- (a)** Undesirable response
- (b)** Desirable response
- (c)** Positive response
- (d)** Negative response
- (e)** None of the above
Answer: A

66. Which one of the following psychologists is not associated with the theories of learning?

- (a)** Sullivan
- (b)** C. Hull
- (c)** Tolman
- (d)** Thorndike
- (e)** Guthrie
Answer: A

67. In which method, the entire list is once exposed to 'S' and then he is asked to anticipate each item in the list before it is exposed on the memory drum?

- (a)** Recall
- (b)** Recognition
- (c)** Relearning and Saving
- (d)** Anticipation Method
- (e)** None of the above
Answer: D

68. The new items which are added to the original list in recognition method are known as:

- (a)** Stimulants
- (b)** Respondents
- (c)** Gradients
- (d)** Distractors
- (e)** None of the above
Answer: A

69. Learning to make new responses to identical or similar stimuli results in a:

- (a)** Negative Transfer
- (b)** Positive Transfer
- (c)** Zero transfer
- (d)** Neutral transfer
- (e)** None of the above
Answer: A

70. Both positive and negative transfers are largely the result of:

- (a)** Similarity of responses in the first and the second task

- (b)** Dissimilarity of responses in the first and the second task
 - (c)** Co-ordination of responses in the first and the second task
 - (d)** Both similarity and dissimilarity of responses in the first and the second task
 - (e)** None of the above
- Answer: B

71. The greater the similarity between the stimuli of the first task and the second task:

- (a)** The less the extent of transfer
 - (b)** The greater the extent of transfer
 - (c)** The minimum the extent of transfer
 - (d)** No transfer occurs
 - (e)** None of the above
- Answer: D

72. A high positive transfer results when stimuli are similar and responses are:

- (a)** Identical
 - (b)** Not Identical
 - (c)** Haphazard
 - (d)** Equipotential
 - (e)** None of the above
- Answer: A

73. It is possible to maximize a positive transfer from a classroom situation to real life situation by making formal education more realistic or closely connected with:

- (a)** Real-life problems
 - (b)** Imaginary problems
 - (c)** Temporary problems
 - (d)** Easy Problems
 - (e)** None of the above
- Answer: A

74. In programmed learning, the importance is placed on:

- (a)** Trial and error learning
 - (b)** Latent learning
 - (c)** Classical conditioning
 - (d)** Operant conditioning
 - (e)** None of the above
- Answer: D

75. Who is regarded as the father of the 'Programmed Learning'?

- (a)** B. F. Skinner
 - (b)** I. P. Pavlov
 - (c)** C.L. Hull
 - (d)** J.B. Watson
- Answer: A

- 76.** Who has first devised a machine for teaching in 1920?
- (a) M. R. F. Maier
 - (b) A. Luchins
 - (c) S. L. Pressey
 - (d) H. F. Harlow
 - (e) D. O. Hebb
- Answer: C
- 77.** In the system of programmed learning, the learner becomes:
- (a) An active agent in acquiring the acquisition
 - (b) A passive agent in acquiring the acquisition
 - (c) A neutral agent in acquiring the acquisition
 - (d) Instrumental in acquiring the acquisition
 - (e) None of the above
- Answer: A
- 78.** Programmed learning:
- (a) Is not helpful for teaching
 - (b) Is not helpful in the socialization of the child
 - (c) Is not helpful in classroom situation
 - (d) Is not helpful for teachers
 - (e) None of the above
- Answer: B
- 79.** Lewin's field theory gives more importance to behaviour and motivation and less to:
- (a) Incentive
 - (b) Drive
 - (c) Experience
 - (d) Intelligence
 - (e) None of the above
- Answer: C
- 80.** Kurt Lewin regards the environment of the individual as his:
- (a) life-space
 - (b) Instinctive drift
 - (c) Autoshaping
 - (d) Foresight
 - (e) None of the above
- Answer: A
- 81.** Guthrie's theory of learning is known as the learning by:
- (a) Interpretation
 - (b) Representation

- (c) Substitution
 - (d) Response
 - (e) None of the above Answer: D
- 82.** For Skinner, the basic issue is how reinforcement sustains and controls responding rather than:
- (a) Which stimulus evokes a response
 - (b) Which response is helpful
 - (c) Which stimulus can be generalized
 - (d) Which stimulus can be discriminated
 - (e) None of the above Answer: A
- 83.** Who said that the event that is drive reducing is satisfying?
- (a) E. C. Tolman
 - (b) R. S. Woodworth
 - (c) E. L. Thorndike
 - (d) Clark H. Hull
 - (e) None of the above Answer: D
- 84.** Materials like food for hungry animals or water for thirsty animals are called:
- (a) Secondary reinforcers
 - (b) Primary Reinforcers
 - (c) Intermittent reinforcers
 - (d) Fixed reinforcers
 - (e) None of the above Answer: B
- 85.** When a thing acquires some characteristics of a reinforcer because of its consistent association with the primary reinforcement, we call it a/an:
- (a) Secondary Reinforcer
 - (b) Primary Reinforcer
 - (c) Fixed Reinforcer
 - (d) Intermittent Reinforcer
 - (e) None of the above Answer: A
- 86.** In one experiment, the chimpanzees were taught to insert poker chips in a vending machine in order to obtain grapes. When this was done, they were made to pull, with all their strength, an iron bar attached to a similar machine to obtain poker chips. The chimpanzees learned it too, because they were allowed to cash those chips for grapes afterwards. Here the token chips had only a/an:
- (a) Primary Reinforcing Value
 - (b) Extra Reinforcing Value
 - (c) Special Reinforcing Value

- (d) Secondary Reinforcing Value
 - (e) None of the above
- Answer: A

87. Partial Reinforcement is often called:

- (a) Intermittent Reinforcement
 - (b) Schedules of Reinforcement
 - (c) Span of Reinforcement
 - (d) Reinforcement Schedule
 - (e) None of the above
- Answer: A

88. Reinforcing a given response only for sometime on trials is known as:

- (a) Partial Reinforcement
 - (b) Continuous Reinforcement
 - (c) Reinforcement Schedule
 - (d) No Reinforcement
 - (e) None of the above
- Answer: A

89. Most human habits are reinforced in a:

- (a) Variable fashion
 - (b) Constant fashion
 - (c) Partial Manner
 - (d) Particular Time span
 - (e) None of the above
- Answer: A

90. Most human habits are resistant to extinction because these are reinforced:

- (a) In a constant fashion
 - (b) All the times
 - (c) Every now and then
 - (d) In a variable fashion
 - (e) Very often
- Answer: D

91. Which type of learning experiments show how the behaviour of animals can be controlled or shaped in a desired direction by making a careful use of reinforcement?

- (a) Classical conditioning
 - (b) Operant conditioning
 - (c) Latent Learning
 - (d) Sign Learning
 - (e) None of the above
- Answer: B

92. In Operant Conditioning, the strength of an operant response is usually measured in terms of

the frequency of lever pressing:

- (a) Per unit of time
 - (b) In every five minutes
 - (c) As a whole
 - (d) In a day
 - (e) None of the above
- Answer: A

93. The method we use in memorising poetry is called:

- (a) Paired-associate learning
 - (b) Distributed learning
 - (c) Serial memorisation
 - (d) Massed learning
 - (e) Syntactic Memorisation
- Answer: C

94. Shifting from right-hand driving (in U.S.A.) to a left-hand driving (in India) is an illustration of:

- (a) Negative transfer of training
 - (b) Positive transfer of training
 - (c) Neutral transfer of training
 - (d) Both neutral and positive transfer of training
 - (e) None of the above
- Answer: A

95. The replacement of one conditioned response by the establishment of an incompatible response to the same conditioned stimulus is known as:

- (a) Backward Conditioning
 - (b) Counter Conditioning
 - (c) Forward Conditioning
 - (d) High order conditioning
 - (e) None of the above
- Answer: B

96. Experimental literature revealed that experiments on latent learning were done by:

- (a) Tolman and Honzik (1930)
 - (b) Gibson and Harlow
 - (c) Pavlov and Watson
 - (d) Kohler and Wertheimer
- Answer: A

97. Working with monkeys, Harlow (1949) propounded that the general transfer effect from one situation to another may be accounted for by the concept of:

- (a) "Learning how to learn" or "Learning Sets"
- (b) Sign learning
- (c) Latent learning

(d) Gradient of learning

(e) Plateau
Answer: A

98. Proactive Inhibition refers to the learning of 'A' having a detrimental effect on the learning of 'B'. So it is a:

(a) Neutral transfer of effect

(b) Zero transfer of effect

(c) Positive transfer of effect

(d) Negative transfer of effect

(e) None of the above
Answer: D

99. Who has defined "perceptual learning" as "an increase in the ability to extract information from the environment as a result of experience or practice with the stimulation coming from it."?

(a) I. P. Pavlov

(b) Wertheimer

(c) B. F. Skinner

(d) Eleanor Gibson (1969)

(e) J.B. Watson
Answer: D

100. To distinguish the calls of birds:

(a) Sign learning is necessary

(b) Perceptual learning is needed

(c) Operant conditioning would be conducive

(d) Insight is needed

(e) CR will be helpful
Answer: B

101. Delusions are characteristically seen in:

A. Schizophrenia

B. Delirium

C. Dementia

D. Depression
Answer: A

102. The presence of delusions, hallucinations, and disturbed cognitive function indicates:

A. Organic brain syndrome

B. Paranoid psychosis

C. Dissociative hysteria

D. Obsessive-compulsive disorder
Malingering-external motivation + Factitious disorder intentionally produced physical/psychological symptoms just to assume the sick role. Answer: A

103. The difference between neurosis and psychosis is:

- A. Severity
 - B. Insight
 - C. Clinical features
 - D. Duration of onset
- Features of psychosis include Gross impairment in reality testing
Answer: B

104. Cognition is:

- A. Perception
 - B. Thought
 - C. Behaviour
 - D. Feeling
- Cognition – thinking
Conation – action
Affect – feeling
Answer: B

105. Delusion is a disorder of:

- A. Perception
 - B. Thinking
 - C. Intelligence
 - D. Judgment
- Hallucination, illusion – are disorders of perception
Answer: B

106. Hallucination is a disorder of:

- A. Perception
 - B. Thinking
 - C. Intelligence
 - D. Memory
- Answer: A

107. Primary delusions are characterised by disorders of:

- A. Thought
 - B. Obsession
 - C. Hallucination
 - D. Loosening of association
- Answer: A

108. All the following are true about hallucinations, except:

- A. It represents a state of inner subjective space
 - B. It is dependent of the observer
 - C. It is as vivid as sensory perception
 - D. It occurs in the absence of perceptual stimulus
- Answer: B

109. The main excitatory neurotransmitter in the CNS is: (AI-2003, Pg-W9-SOP)

- A. Cysteate
 - B. Acetylcholine
 - C. Aspartate
 - D. Glutamate
- Inhibitory neurotransmitter is GABA
Answer: D

110. 25-years house wife come to the psychiatry outpatients department complaining that her nose was longer than usual. She felt that her husband did not like her because of the deformity and had developed relationship with the neighboring girl. Further she complained that people made fun of her. It was not possible to convince her that there was no deformity. Her symptoms include:

- A. Delusion
 - B. Depersonalization
 - C. Depression
 - D. Hallucination
- Delusion is a disorder of thinking, which is a firm, fixed, unshakable, and held with strong conviction, irrespective of sociocultural and educational background. The content of it being bizarre but not always. Answer: A

111. Neologism is:

- A. Minting of words
 - B. Totally
 - C. Has some meaning
 - D. Modification of word
- Neologisms: Newly formed words or phrases whose derivation cannot be understood. Paronyms – word approximations where normal words are used in an unconventional or distorted way, but the derivation can be understood. Answer: B

112. Delusion is a false belief which is:

- A. Reasonable
 - B. Comprehensible
 - C. Both of the above
 - D. None of the above
- Delusion is a false unshakable belief which is not amenable to reasoning and is not in keeping with the patient's sociocultural and educational background. Answer: B

113. Auditory hallucinations are seen in all of the following except:

- A. Hysteria
 - B. Mania
 - C. Amphetamine toxicity
 - D. Schizophrenia
- Answer: A

114. Tactile hallucinations are associated with:

- A. Schizophrenia
 - B. Cocaine psychosis
 - C. Temporal lobe epilepsy
 - D. All of the above
- Answer: D

115. Pseudo-hallucinations are not said symptoms of:

- A. Hysteria

- B. Schizophrenia
 - C. Pseudo-neurotic schizophrenia
 - D. Malingering
- Answer: A

116. Delusion is seen in all, except:

- A. Mania
 - B. Depression
 - C. Anxiety neurosis
 - D. Schizophrenia
- Answer: C

117. Delusion is a disorder of:

- A. Perception
 - B. Thought
 - C. Personality
 - D. Affect
- Answer: B

118. Delusion is:

- A. A feeling of loss of sensation
 - B. Not able to get proper answer
 - C. A false belief
 - D. An uncomfortable sensation
- Delusions are false unshakable beliefs which are not in keeping with patient's sociocultural and educational background. Answer: C

119. Thought disorder is seen in:

- A. Obsessive-compulsive disorder
 - B. Anxiety neurosis
 - C. Schizophrenia
 - D. Psychopathic personality
- Autistic thinking, loosening of association are forms of thought disorder seen in schizophrenia. Answer: C

120. A false belief unexplained by reality, which is shared by a number of people is:

- A. Delusion
 - B. Obsession
 - C. Superstition
 - D. Illusion
- Answer: C

121. One of the following is a disorder of thought:

- A. Illusion
- B. Hallucination
- C. Delirium

D. Delusion Illusion and hallucination are disorders of perception Delusion is a disorder of content of thought Delirium is an organic condition where there is an acute confusional state. Answer: D

122. Deja vu Phenomenon is:

- A.** Feeling palpable music
- B.** Feeling nauseating smell
- C.** Fear of impending doom
- D.** Familiarity to unfamiliar surroundings Illusion of familiarity in unfamiliar situations is Deja vu. Deja Pense – related to thoughts Deja entendu – related to auditory perception. Answer: D

123. Depersonalisation is a disorder of:

- A.** Mood
- B.** Thought
- C.** Perceptions
- D.** Cosmetic Other disorders of perceptions are Hallucinations and Illusions. Answer: C

124. The most common cause of mood congruent delusion is:

- A.** Obsessive-compulsive neurosis
- B.** Schizophrenia
- C.** Dementia
- D.** Mania Mood-congruence refers to occurrence of psychiatry symptoms in keeping with mood state. Answer: D

125. Visual hallucinations are seen in:

- A.** Alcoholism
- B.** Mania
- C.** Depression
- D.** Phobia Seen in Delirium tremens. Answer: A

126. Tactile hallucination is a feature of:

- A.** Anxiety neurosis
- B.** Cocaine poisoning
- C.** Morphine withdrawal
- D.** Schizophrenia Delirium and anxiety neurosis can also occur with cocaine. Answer: B

127. “Phantom limb” is an example of:

- A.** Delusion
- B.** Illusion
- C.** Phi phenomenon
- D.** Hallucination

E. Fantasy Answer: D

128. 'Mirage' is an example of:

- A. Illusion
- B. Delusion
- C. Hallucination
- D. Extrasensory perception
- E. Fantasy Answer: A

129. Delusion is not seen in:

- A. Anxiety
- B. Mania
- C. Depression
- D. Schizophrenia Answer: A

130. Cognition means:

- A. Behaviour
- B. Thought
- C. Perception
- D. Feeling There are three psychiatric domains. Cognition (thought) Affect (Feeling) Conation (action) Equilibrium normally exists between the domains. Answer: B

131. Delusions of influence are characteristic of:

- A. Obsessive state
- B. Schizophrenia
- C. Depression
- D. Dramatization Delusion of control/influence is seen commonly in schizophrenia. Answer: B

132. Delusions and hallucinations are known as:

- A. Psychotic symptoms
- B. Neurotic symptoms
- C. Behavioral symptoms
- D. Psychosomatic symptoms Term psychosis is defined as Gross impairment of reality testing Loss of weight Pressure of characteristic symptoms like delusions and hallucination. Answer: A

133. The commonest disorder of perception is:

- A. Delusion
- B. Hallucination
- C. Passivity

- D.** Compulsion Hallucination and passivity are disorders of perception Compulsion delusions are disorders of thought. Answer: B
- 134.** Therapeutic community concept was propagated by:
- A.** Freud
 - B.** Adler
 - C.** Maxwell Jones
 - D.** Watson. J Answer: C
- 135.** Psychoanalysis was found by:
- A.** Freud
 - B.** Jung
 - C.** Adler
 - D.** Eysenck Answer: A
- 136.** A false sensory perception in the absence of external stimulus is:
- A.** Hallucination
 - B.** Illusion
 - C.** Delusion
 - D.** Depersonalization Answer: A
- 137.** Loss of insight occurs in:
- A.** Anxiety neurosis
 - B.** Schizophrenia
 - C.** Psychosomatic disorder
 - D.** MDP Loss of weight is a feature of psychosis. It is seen both in schizophrenia and manic phase of MDP but prominent in schizophrenia. Answer: B
- 138.** Grimacing is a feature of:
- A.** Catatonic schizophrenia
 - B.** Hebephrenic schizophrenia
 - C.** Paranoid schizophrenia
 - D.** Juvenile schizophrenia Answer: A
- 139.** Flashbacks are seen with:
- A.** LSD
 - B.** Amphetamine
 - C.** Cocaine

- D.** Opiates Flashback is a spontaneous recurrence of Drug use experience in drug free state. Answer: A
- 140.** Loss of insight occurs in:
- A.** Hysteria
 - B.** Schizophrenia
 - C.** Obsessive-compulsive neurosis
 - D.** Somatoform disorders Loss of insight occurs in psychosis except schizophrenia all the other three disorders belongs to neuroses. Answer: B
- 141.** Confabulation is a defect of:
- A.** Memory
 - B.** Intelligence
 - C.** Affection
 - D.** Concentration Answer: A
- 142.** 'La belle indifference' is seen in:
- A.** Dissociative disorder
 - B.** Phobia
 - C.** Obsessive-compulsive disorder
 - D.** Depersonalization disorder Lack of concern towards symptoms in patients with dissociative disorder. Answer: A
- 143.** Ganser's syndrome is associated with:
- A.** Repeated lying
 - B.** Approximate answers
 - C.** Confabulation
 - D.** Malingering Ganser's syndrome is a dissociative disorder. It is also called hysterical pseudo dementia. Answer: B
- 144.** Nihilistic delusion is seen in:
- A.** Depression
 - B.** Schizophrenia
 - C.** Mania
 - D.** OCN Nihilistic delusion is mood – congruent type of delusion seen in depression. Answer: A
- 145.** Neologism is characteristic of:
- A.** Mania
 - B.** Schizophrenia
 - C.** Depression

D. OCN Answer: B

146. An 18-year-old hears voices discussing him in the third person. He has

A. TLE

B. Depression

C. Mania

D. Schizophrenia Answer: D

147. To become unfamiliar of familiar situation is called:

A. Deja vu

B. Jamais vu

C. Deja pence

D. Deja entendu Explanation:— Deja vu—illusion of visual recognition in which a new situation is incorrectly regarded as a repetition of a previous memory. Jamais vu—False feeling of unfamiliarity with a real situation that a person has experienced. Deja pence—Illusion that a new thought is recognised as a thought previously felt or expressed. Deja entendu—Illusion of auditory recognition. Answer: B

148. The term “free association” was coined by:

A. Adler

B. Erickson

C. Freud

D. Jung Other terms coined by Freud- psychoanalysis, oedipus complex, electra complex, penis envy, primal scene, pleasure principle. Answer: C

149. Who experimented the instrumental learning?

A. Gustav

B. Sigmund Freud

C. Skinners

D. Karl Jug Also called as operant conditioning. Answer: C

150. Psychosis is characterized by all, except:

A. Contact with reality is maintained

B. Positive symptoms are usually present

C. Impaired judgment

D. Insight is lost. The first symptom for psychosis is a gross impairment in reality testing. Answer:

A

151. Which of the following is most specific of psychosis?

A. Neologism

B. Incoherence

- C. Perseverance
- D. Pressure of speech Answer: A

152. A 23-year-old man has a fight with a boy in his neighborhood. The next day he feels two policemen are following him to arrest him. He is agitated and pales up and down his room. He feels that his neighbors are controlling his mind by sending waves from an electric device. He is suffering from:

- A. Delusions of persecution
- B. Thought insertion
- C. Passivity
- D. Depression Answer: A

153. Early in psychiatric interview, it is important for the physician to:

- A. Let patients talk about what is bothering them
- B. Obtain information about the patient's mood
- C. Record the family history
- D. Inform the patient of the fee
- E. Obtain details of any past psychiatric illness Answer: C

154. Epistemology is the branch of philosophy which deals with the theories of

- A. Reality
- B. Existence
- C. Knowledge
- D. Values Answer: Knowledge

155. "Things as they are and as they are likely to be encountered in life rather than words" was the slogan of the

- A. Pragmatists
- B. Realists
- C. Idealists
- D. Existentialists Answer: Realists

156. Who advocated the creation of a classless society ?

- A. Plato
- B. Auguste Comte
- C. M.K. Gandhi
- D. Karl Marx Answer: Karl Marx

157. The right to free and compulsory education for children between age group of 6 to 14 has been inserted in Indian Constitution as

- A. Article 46
- B. Article 16
- C. Article 45A
- D. Article 21A Answer: Article 21A

158. Who advocated the logical analysis of language for getting the true meaning ?

- A. A.J. Ayer
- B. Bertrand Russel
- C. Morris L. Biggie
- D. G.E. Moore Answer: A.J. Ayer

159. Sociology of Education is

- A. A branch of Anthropology
- B. A study of the Society
- C. An analysis of Sociological processes involved in the institutions of Education.
- D. A science which studies primitive societies. Answer: An analysis of Sociological processes involved in the institutions of Education.

160. Schools are basically social institutions as

- A. They preserve and instil the values of our culture in future generations.
- B. They suggest ways and means for social progress.
- C. They suggest solutions to social problems.
- D. They are established by the society. Answer: They preserve and instil the values of our culture in future generations.

161. Which is not a criterion used consistently for placing people in a particular social class ?

- A. Race
- B. Religion
- C. Knowledge
- D. Wealth Answer: Knowledge

162. Use of Science and Technology in replacing existing social practices is termed as

- A. Socialization
- B. Westernization
- C. Sanskritization
- D. Modernization Answer: Modernization

163. Which of the following chains represents the change processes underlying educational system of Free India ?

- A. Psychological change – Social change – Political change – Educational change.
- B. Political change – Social change – Psychological change – Educational change.
- C. Social change – Psychological change – Political change – Educational change.

- D.** Educational change – Social change – Psychological change. Answer: Political change – Social change – Psychological change – Educational change.
- 164.** Use of Science and Technology in replacing existing social practices is termed as
- A.** Socialization
 - B.** Westernization
 - C.** Sanskritization
 - D.** Modernization Answer: Modernization
- 165.** Equality of opportunities in education implies that each student
- A.** passes examination with first division.
 - B.** gets equal number of books and stationery.
 - C.** gets facilities according to his abilities and interests.
 - D.** gets facilities according to his potential and level in the society. Answer: gets facilities according to his abilities and interests.
- 166.** Which of the following is not a principle of development ?
- A.** Principle of continuity.
 - B.** Principle of individual difference.
 - C.** Principle of proceeding from specific to general response.
 - D.** Principle of integration. Answer: Principle of proceeding from specific to general response.
- 167.** Development of language in children, according to B.F. Skinner, is the result of
- A.** Training in grammar
 - B.** Imitation and reinforcement
 - C.** Innate abilities
 - D.** Maturation Answer: Imitation and reinforcement
- 168.** Behaviour pattern that increases in frequency when followed by a reward is known as
- A.** Shaping
 - B.** Classical Conditioning
 - C.** Generalization
 - D.** Operant Conditioning Answer: Operant Conditioning
- 169.** Find out the odd one :
- A.** Originality
 - B.** Punctuality
 - C.** Flexibility
 - D.** Fluency Answer: Punctuality
- 170.** Who propounded Self Theory of Personality ?
- A.** Kretschmer

- B. Allport
- C. Eysenck
- D. Roger Answer: Roger

171. Archimedes found the solution of his problem when he was in his bath tub. This will come under which step of process of creativity ?

- A. Preparation
- B. Incubation
- C. Illumination
- D. Verification Answer: Illumination

172. The pioneer of functionalism is

- A. Wilhelm Wundt
- B. William James
- C. J.B. Watson
- D. Kurt Lewin Answer: William James

173. Nihar fails in the examination and attributes his failure to the framing of the faulty question paper. Which defence mechanism does he use ?

- A. Projection
- B. Compensation
- C. Identification
- D. Rationalisation Answer: Rationalisation

174. Which of the following is not a characteristic of Naturalistic Inquiry ?

- A. Multiple Realities
- B. Generalisation
- C. Human Relations
- D. Value Based Research Answer: Generalisation

175. Which of the following variances is not controlled or manipulated in a research design ?

- A. Variance of independent variable.
- B. Variance of dependent variable.
- C. Variance of extraneous variables.
- D. Error variance Answer: Variance of dependent variable.

176. Which of the following is not a criterion for the statement of a good research problem ?

- A. Expression of relationship between/among variables.
- B. Clarity and unambiguousness.

- C. Possibility of empirical testing.
- D. Possibility of use of statistical analysis. Answer: Possibility of use of statistical analysis.

177. Which of the following variables is continuous ?

- A. Attitude towards school
- B. Family size in a locality
- C. Marital status of College students
- D. Religious affiliation of workers. Answer: Attitude towards school

178. Which of the following is a measure of location ?

- A. Mode
- B. Mean
- C. Percentile
- D. Standard Deviation Answer: Percentile

179. An investigator wants to study the vocational aspirations of visually challenged children in a wide geographical area. He should select his sample by using

- A. Simple Random sampling
- B. Stratified sampling
- C. Purposive sampling
- D. Convenient sampling Answer: Purposive sampling

180. The distribution of a large number of means based on samples of the sample size selected from the same population is known as

- A. normal distribution
- B. sampling distribution
- C. standard distribution
- D. rectangular distribution Answer: sampling distribution

181. Two variables X and Y are correlated. This means that the two variables

- A. cause variation in each other
- B. measure the same trait
- C. vary together
- D. vary independently Answer: vary together

182. When the questions are presented to the respondents in a face-to-face situation and the interviewer fills out the query rather than the subjects it is known as

- A. An inventory
- B. A questionnaire
- C. A schedule
- D. A test Answer: A schedule

- 183.** Who said this "Education is man-making. It is that by which character is formed, strength of mind is increased, intellect is expanded and by which man can stand on his own feet" ?
- A.** Vivekananda
 - B.** Tagore
 - C.** Dayanand Saraswati
 - D.** None of these Answer :Vivekananda
- 184.** Purpose of creation of the universe and its relation to man and god is discussed in
- A.** Metaphysics
 - B.** Ethics
 - C.** Epistemology
 - D.** None of these Answer: Metaphysics
- 185.** Which of the following agency regulates education ?
- A.** Church
 - B.** State
 - C.** School
 - D.** Library Answer: State
- 186.** "The greatness of a nation is to be measured not by its material power and wealth but by the intercultural relationship of its people." Who said this ?
- A.** Dr. Radhakrishnan
 - B.** Tagore
 - C.** Vivekananda
 - D.** Gandhi Answer:Dr. Radhakrishnan
- 187.** Which of the following does not specify Max Weber's concept of social stratification
- A.** Educational Status
 - B.** Income and Wealth
 - C.** Political Power
 - D.** 4 Social Prestige Answer: Educational Status
- 188.** If rules of multiplication helps in learning correlation or regression, then it is an example of
- A.** Sequential transfer
 - B.** Horizontal transfer
 - C.** Negative transfer
 - D.** Vertical transfer Answer:Vertical transfer
- 189.** According to Freud, Super Ego is properly developed during
- A.** latency period
 - B.** anal period

- C. phallic period
- D. none of these Answer: latency period

190. When response is based on uncommon area of the blot, it is denoted by

- A. S
- B. Dd
- C. DW
- D. DdW Answer: Dd

191. Individual psychology of personality was given by

- A. A. Adler
- B. Jung
- C. Eysenck
- D. None of these Answer: A. Adler

192. Which is the highest level of concept formation ?

- A. Formal level
- B. Sensory level
- C. Concrete level
- D. None of these Answer: Formal level

193. Which of the following is the apex body in the area of Teacher Education in India ?

- A. UGC
- B. MHRD
- C. NCTE
- D. NCERT Answer: NCTE

194. Who have signed MOU for accreditation of Teacher Education Institutions in India ?

- A. NAAC and UGC
- B. NCTE and NAAC
- C. UGC and NCTE
- D. None of the above Answer: NCTE and NAAC

195. As per NCTE norms, what should be the pattern of teaching staff for a unit of 100 students B.Ed. level ?

- A. 1 1 + 7
- B. 2 1 + 9
- C. 3 1 + 10
- D. 4 1 + 5 Answer: 1 + 7

196. There are three phases of teaching given by P. Jackson, which of the following is incorrect one

?

- A. Pre-active phase
- B. Underactive phase
- C. Interactive phase
- D. Post-active phase Answer: Underactive phase

197. Which of the following is the least important aspect of the teachers' role in the guidance of learning ?

- A. The development of insight into what constitutes an adequate performance.
- B. The development of insight to overcome the pitfalls and obstacles.
- C. The provision of encouragement and moral support.
- D. The provision of continuous diagnostic and remedial help. Answer: The development of insight to overcome the pitfalls and obstacles.

198. Which of the following qualities of a teacher will be liked most by you ?

- A. Idealistic philosophy
- B. Compassion
- C. The Discipline Run
- D. Entertaining Answer: Compassion

199. The most important challenge for a teacher is

- A. to maintain discipline in the classroom.
- B. to make students do their homework.
- C. to prepare the question-bank.
- D. to make teaching process enjoyable. Answer: to make teaching process enjoyable.

200. Techno-Pedagogic competency is

- A. a science of using technology in teaching.
- B. a technique of combining principles of technology and principles of teaching.
- C. a set of skills of interweaving technology into teaching and learning both scientifically and aesthetically.
- D. a competence to develop techno-pedagogic systems in education. Answer: a set of skills of interweaving technology into teaching and learning both scientifically and aesthetically.

201. Psycho-analytic approach of counselling was first introduced by

- A. Adler
- B. Jung
- C. Freud
- D. None of these Answer: Freud

202. Which of the following does not belong to the category of non-probability sample ?

- A. Quota sample
- B. Multi-stage sample

- C. Purposive sample
 D. Incidental sample Answer: Multi-stage sample
- 203.** The research proposals sent to research institutes for financial assistance must have
 A. The whole plan and procedure
 B. Budget requirements and time schedule
 C. 3 Definite objectives of research
 D. None of the above Answer: Budget requirements and time schedule
- 204.** Which of the following is not an approach of analysis of qualitative data ?
 A. Logical Analysis
 B. Criterion Analysis
 C. Content Analysis
 D. Inductive Analysis Answer: Criterion Analysis
- 205.** Internal criticism is done
 A. to verify the accuracy of the source.
 B. to verify the authenticity of the source.
 C. Both of these
 D. None of these Answer: to verify the accuracy of the source.
- 206.** Which of the following is described as Magna-Carta of Indian Education ?
 A. Sargent Commission
 B. Wood's Despatch
 C. Macaulay Minutes
 D. Hunter Commission Answer: Macaulay Minutes
- 207.** "Rising knowledge to wisdom is real education" was said by
 A. Rigveda
 B. Chhandogya Upanishad
 C. Samaveda
 D. Bhagvadh Geeta Answer: Chhandogya Upanishad
- 208.** The Oriental School of Thought is related to
 A. knowledge of science
 B. classical literature
 C. conservation of fashion
 D. learning of natives Answer: classical literature
- 209.** 'Project is a whole-hearted purposeful activity proceeding in a social environment', it was defined by
 A. John Dewey
 B. Ballard

- C. Kilpatrick
- D. Adamson Answer:Kilpatrick

210. Who said that the school be made as miniature society ?

- A. Skinner
- B. Thorndike
- C. Herbert
- D. Dewey Answer:Dewey

211. 'Socialization' is a process by which the individual is adapted to his

- A. classroom environment
- B. social environment
- C. political environment
- D. cultural environment Answer: social environment

212. The movement from one social class to another is known as

- A. social status
- B. social control
- C. social change
- D. social mobility Answer: social mobility

213. 'Cultural Lag' is the term used by

- A. Ogburn
- B. Pyne
- C. Weber
- D. Marx Answer: Ogburn

214. District Primary Education Programme (DPEP) was started in

- A. 990
- B. 1994
- C. 1998
- D. 1996 Answer:1994

215. Supervision is a continuous activity whereas Inspection is a

- A. general activity in a common place
- B. special activity in a given moment
- C. complex activity in a situation
- D. specific activity in a specific time Answer: specific activity in a specific time

216. Who propounded the 'self' theory of personality ?

- A. Allport
- B. Kretschmar

- C. Eysenck
- D. Roger Answer: Roger

217. University Education Commission constituted in 1948 was appointed by

- A. Ministry of Human Resource Development
- B. Ministry of Education
- C. NCERT
- D. ICSSR Answer: ICSSR

218. Education falls under the

- A. Concurrent List
- B. Fundamental Rights
- C. Constitution of India
- D. State List Answer: Concurrent List

219. Curriculum means

- A. all the experiences which students get in school.
- B. subject that are transferred by the faculty.
- C. syllabus prescribed for the course.
- D. class experiences, sports and games. Answer: all the experiences which students get in school.

220. Programmed learning is based on the principles of

- A. Conditioned Learning Theory
- B. Cognitive Learning Theory
- C. Gestalt Learning Theory
- D. Operant-conditioning Answer: Operant-conditioning

221. According to Piaget, at what stage does abstract thinking begin to develop ?

- A. Sensory motor
- B. Pre-operational
- C. Concrete operational
- D. Formal operational Answer: Formal operational

222. Which of the following is the incorrect pair ?

- A. Sign Theory of – Tolman Learning
- B. Field Theory of – Lewin Learning
- C. Social Learning – Bruner Theory
- D. Trial and error – Thorndike Theory Answer: Social Learning – Bruner Theory

223. Which is the most effective reinforcement schedule according to operant conditioning theory of learning for stable learning ?

- A. Continuous reinforcement
- B. Fixed ratio reinforcement
- C. Variable ratio reinforcement

D. Fixed interval reinforcement Answer: Variable ratio reinforcement

224. Xerophthalmia is a result of insufficient amount of

- A. Vitamin C
- B. Vitamin B
- C. Vitamin D
- D. Vitamin A Answer: Vitamin A

225. A child who has unusual difficulty in oral instruction may have the following impairment

- A. Intellectual disability
- B. Cerebral Palsy
- C. Hearing impairment
- D. Visual impairment Answer: Hearing impairment

226. The child who reads numbers wrongly has the following learning disability

- A. Dyscrasia
- B. Dyslexia
- C. Dyspepsia
- D. Dyscalculia Answer: Dyslexia

227. The child having the difficulty in picking up objects is suspected to have

- A. Lower level of intellectual function
- B. Sight impairment
- C. Speech impairment
- D. Locomotor impairment Answer: Locomotor impairment

228. Delinquency is committed by the children of the age group

- A. 8 – 18 years
- B. 6 – 14 years
- C. 7 – 15 years
- D. 9 – 19 years Answer: 8 – 18 years

229. Which of the following philosophies are most tilted to individualism ?

- A. Jainism
- B. Samkhya
- C. Buddhism
- D. None of these Answer: Jainism

230. Research means

- A. Searching again and again
- B. Finding solution to any problem

- C. Scientific approach to new truth
- D. Conducting experiment Answer: Scientific approach to new truth

231. Which of the following is the first step in the research process ?

- A. Searching sources of information.
- B. Survey of related literature.
- C. Identification of a broad area of research.
- D. Searching for solution to problem. Answer: Searching for solution to problem.

232. If a researcher conduct a research on finding out which administrative style contributes more to institutional effectiveness, this will be an example of

- A. Ex post facto research
- B. Action research
- C. Applied research
- D. Fundamental research Answer: Action research

233. A researcher is generally expected to

- A. study the existing literature in a field.
- B. generate new principles and theories.
- C. synthesize the ideas given by others.
- D. evaluate the findings of a study. Answer: generate new principles and theories

234. The Government of India conducts Census after every 10 years. The method of research used in this process is

- A. Case Study
- B. Developmental
- C. Survey
- D. Experimental Answer: Survey

235. Two variables X and Y are significantly correlated. This means that

- A. X causes variation in Y.
- B. Y causes variation in X.
- C. X and Y vary together.
- D. No such conclusion may be drawn. Answer: X and Y vary together.

236. Which of the following types of studies results in findings which could not be generalized to other situations ?

- A. Descriptive
- B. Historical
- C. Experimental
- D. Causal Comparative Answer: Historical

- 237.** The Rosarch Inkblot test consists of
- A. Five black and five coloured cards
 - B. Ten black and ten white cards
 - C. Five black and white & five multi-coloured cards
 - D. Ten multi-coloured cards Answer: Five black and white & five multi-coloured cards
- 238.** Which of the following terms is irrelevant to a qualitative study ?
- A. Comparison
 - B. Prediction
 - C. Correlation
 - D. Exploration Answer: Exploration
- 239.** Which of the following is a characteristic feature only of experimental studies ?
- A. Control of extraneous variables.
 - B. Study of cause and effect relationship.
 - C. Observing variation in the dependent variable.
 - D. Manipulation of treatment variable. Answer: Manipulation of treatment variable.
- 240.** When a researcher checks the genuineness and authenticity of the source material, it is known as
- A. External validity
 - B. External criticism
 - C. Concurrent validity
 - D. Internal consistency Answer: External criticism
- 241.** An investigator studied the census data for a given area and prepared a write-up based on them. Such a write-up is called
- A. Research Paper
 - B. Article
 - C. Thesis
 - D. Research Report Answer: Article
- 242.** A school counselor is planning a guidance lesson for seventh- and eighth-grade students. Which of the following instructional approaches would likely be most responsive to the developmental needs of students in this age range?
- A. small-group activities that involve active participation
 - B. open-ended activities that encourage free exploration
 - C. counselor-directed activities that are highly structured
 - D. individual activities that encourage friendly competition Answer : A.
- 243.** Lev Vygotsky's theory of human cognition and learning emphasizes which of the following concepts?
- A. the role of trial and error in learning

- B. learning as a conditioned response to external stimuli
- C. the role of social interaction in learning
- D. learning as a process that unfolds in a sequence of stages Answer : C

244. A school counseling department has been asked by the principal to implement a suicide prevention initiative at the school. Which of the following strategies would be most effective for the counselors to use in collaborating with teachers on this effort?

- A. encouraging teachers to make referrals to help identify the students most at risk of suicide
- B. meeting with teachers to plan how best to integrate the initiative into the existing school program
- C. training teachers to deliver a suicide prevention unit through classroom guidance lessons
- D. arranging for teachers to be responsible for publicizing the initiative throughout the school community Answer : B

245. A school counselor wishes to evaluate the impact and effectiveness of a developmental guidance unit on discrimination and harassment. Which of the following strategies would be the best to use for such an evaluation?

- A. surveying the opinions of faculty and staff on whether such behaviors have decreased
- B. interviewing parents/guardians about types of behaviors being demonstrated by their children at home
- C. using a spreadsheet to track incident reports related to such behavior at school
- D. soliciting feedback from students who are participating in behavior-related counseling groups

246. A school counselor wants to facilitate ongoing evaluation and feedback with regard to the counseling program's individual planning component. The most effective strategy for this purpose would be to:

- A. interview students with whom the counselor has conducted individual planning to discuss how the experience helped them and how it might be improved.
- B. maintain a chart of each student seen for individual planning, the amount of time spent with each student, and the primary issues and topics addressed.
- C. conduct periodic comparisons between the academic records of students who have been seen for individual planning and those of students who have not.
- D. ask the teachers of students who have received individual planning services to inform the counselor of any changes they notice in their students afterward. Answer : A.

247. After collecting referral data from teachers, an elementary school counselor concludes that it will be necessary to implement several small counseling groups focused on social skills. When selecting the members for each group, the counselor could best promote group effectiveness by:

- A. assembling groups of students whose members share similar backgrounds and values.
- B. creating groups whose members are already friends.
- C. establishing groups in which at least one member is a positive role model for other students.
- D. forming groups that have fewer than five members. Answer : C.

248. In response to a large caseload, a school counselor decides to implement small-group

counseling as an efficient way to meet students' needs. Which of the following steps would be best for the counselor to take first when implementing such counseling?

- A. obtaining informed consent from parents/guardians
 - B. conducting a needs assessment to identify potential topics and participants
 - C. developing goals and an action plan for the group
 - D. publicizing the decision to administrators, teachers, parents/guardians, and students
- Answer : B.

249. When meeting with the school counselor, a student reveals that she often feels faint and has been losing a significant amount of hair. During the session, the counselor observes that the student makes several negative comments about herself and her appearance and that she is wearing clothes that are noticeably too large. The student's disclosures and behaviors are most likely indicative of which of the following problems?

- A. drug or alcohol abuse
 - B. a mood disorder
 - C. physical abuse
 - D. an eating disorder
- Answer : D

250. A teacher at an elementary school dies suddenly during the school year and the school counselor is notified. The counselor's initial action in this situation should be to:

- A. offer to help plan a memorial service for the teacher.
 - B. assemble the school's crisis response team.
 - C. schedule individual and group counseling for students.
 - D. announce the school's cancellation for the rest of the week.
- Answer : B

251. A school counselor meets with a student who has shown signs of depression, including social withdrawal and loss of interest in previously enjoyed activities. At one point during the meeting, the student discloses having recurring thoughts about suicide. Which of the following would be the counselor's best response in this situation?

- A. pointing out to the student that suicide is an irreversible act
 - B. arranging to conduct a series of individual counseling sessions, beginning the following day
 - C. informing the student that the counselor must contact the student's family immediately
 - D. asking the student questions to evaluate the degree of risk
- Answer : D

252. A school counselor is planning a career development lesson focused on helping preteens expand their self-understanding. Which of the following types of assessments would likely be most effective to use in conjunction with this lesson?

- A. interest inventories
 - B. achievement tests
 - C. behavioral observations
 - D. intelligence tests
- Answer : A

253. A student with a physical disability is meeting with the school counselor to discuss postsecondary planning. The student is pessimistic about having a rewarding career and says that employers don't hire people with disabilities for anything but "boring jobs." Which of the following would be the counselor's best response?

- A. providing the student with examples of famous people with disabilities who have achieved success in various careers
 - B. reminding the student that individuals with disabilities have employment rights that are guaranteed by federal and state law
 - C. seeking out successfully employed individuals with similar disabilities who are willing to serve as mentors to the student
 - D. pointing out that many individuals who start out in entry-level jobs achieve career success through persistence and hard work
- Answer : C

254. Data on course enrollment at a high school indicate that students from a particular demographic group have been significantly underrepresented in college preparatory courses over the past four years. The school counselor's best initial response would be to:

- A. develop in-service training for teachers on how to guide targeted students to enroll in advanced-level courses.
 - B. schedule a parent night focused on how students' course selections can affect their prospects for postsecondary success.
 - C. develop informational handouts for entering ninth graders that stress the idea that every student is capable of succeeding in college.
 - D. schedule a meeting with the school principal to assess the scope of the problem and begin developing an action plan.
- Answer : D

255. A school counselor is reviewing a database of dropout rates for the school. The counselor sees that the school's ninth-grade dropout rate last year fell by 8 percent from the previous year. To obtain more precise information on school effectiveness, the counselor should take which of the following steps next?

- A. inspect different graphic representations of the data
 - B. disaggregate the data by various student subgroups
 - C. review similar data for other middle schools in the region
 - D. extend the current trend to project next year's dropout rate
- Answer : B

256. During a meeting with a school counselor, a student confides that she is pregnant and asks for information on obtaining an abortion. The counselor has a strong moral objection to abortion and is hesitant to provide the requested information. Under these circumstances, the counselor has an ethical responsibility to:

- A. refer the student to another counselor at the school.
 - B. explain that many people believe abortion to be wrong.
 - C. suggest that the student consider alternative options.
 - D. probe the student's level of commitment to her decision.
- Answer : A

257. Guidance refers to _____.

- (A) An advice provided by superior to resolve problem
 - (B) A professional advice provided by Counselor in overcoming from personal or Psychological problems
 - (C) Both A & B
 - (D) None of the above.
- Answer : A

- 258.** Counseling refers to_____.
- (A) A Professional advice byCounselor
 - (B) An Advice by Elder
 - (C) Both A & B
 - (D) All of the above..Answer : A
- 259.** Which of the following is notthe type of counseling?
- (A) Marriage and Family Counseling
 - (B) Mental Health Counseling
 - (C) Substance Abuse Counseling
 - (D) Above All are types ofCounselling
 - (E) None of the Above..Answer : D
- 260.** What does a school Counselordo?
- (A) helping students in theiracademic goals
 - (B) helping students in social andpersonal development
 - (C) helping students in their careerdevelopment
 - (D) All of the Above
 - (E) None of the above..Answer : D
- 261.** Guidance is a process of_____.
- (A) to give advice to the child
 - (B) teaching English to the Child
 - (C) Both A & B
 - (D) None of the Above..Answer : A
- 262.** In Probing or Questioning fromthe Counselor enables what?
- (A) to help students to moveforward in helping process
 - (B) investigate other parts of his orher story
 - (C) Counselor can be with studentsphysically or psychologically
 - (D) None of the Above..Answer : A
- 263.** The main aim of educationalguidance is__.
- (A) Pupil Development
 - (B) To Solve the Problems
 - (C) Improvement of Curriculum
 - (D) None of the Above..Answer : A
- 264.** A school Counselor worksin_____
- (A) Primary , Middle and HighSchools

- (B) In Colleges
- (C) In Universities
- (D) None of the Above. Answer : A

265. Main objective of educational guidance is to bring what change in the pupil_.

- (A) Psychological Development of the child
- (B) responsibility of self direction
- (C) Both A & B
- (D) None of the Above. Answer : B

266. Name the person who is credited with Guidance Movement ?

- (A) Einstein
- (B) George Washington
- (C) Frank Parsons
- (D) All of the Above. Answer : C

267. What are the characteristics of Continuous and Comprehensive Evaluation?

- (a) It increases the workload on students by taking multiple tests.
- (b) It replaces marks with grades.
- (c) It evaluates every aspect of the student.
- (d) It helps in reducing examination phobia.

Select the correct answer from the codes given below:

- (1) (a), (b), (c) and (d)
- (2) (b) and (d)
- (3) (a), (b) and (c)
- (4) (b), (c) and (d). Answer: 4

268. Which of the following attributes denote great strengths of a teacher?

- (a) Full-time active involvement in the institutional management
- (b) Setting examples
- (c) Willingness to put assumptions to the test
- (d) Acknowledging mistakes

Select the correct answer from the codes given below:

- (1) (a), (b) and (d)
- (2) (b), (c) and (d)
- (3) (a), (c) and (d)
- (4) (a), (b), (c) and (d). Answer: 2

269. Which one of the following statements is correct in the context of multiple-choice type questions?

- (a) They are more objective than true-false type questions.

- (b) They are less objective than essay type questions.
- (c) They are more subjective than short-answer type questions.
- (d) They are more subjective than true-false type questions. Answer: 1

270. What are required for good teaching?

- (a) Diagnosis
- (b) Remedy
- (c) Direction
- (d) Feedback

Select the correct answer from the codes given below:

- (1) (a), (b), (c) and (d)
- (2) (a) and (b)
- (3) (b), (c) and (d)
- (4) (c) and (d) Answer: 1

271. The main objectives of student evaluation of teachers are:

- (a) To gather information about student weaknesses.
 - (b) To make teachers take teaching seriously.
 - (c) To help teachers adopt innovative methods of teaching.
 - (d) To identify the areas of further improvement in teacher traits. Identify the correct answer from the codes given below:
- (1) (a) and (b) only
 - (2) (b), (c) and (d) only
 - (3) (a), (b) and (c) only
 - (4) (a) only Answer: 2

272. Identify the important element a teacher has to take cognizance of while addressing students in a classroom.

- (a) Avoidance of proximity
- (b) Voice modulation
- (c) Repetitive pause
- (d) Fixed posture Answer: 2

273. As a teacher, select the best option to ensure your effective presence in the classroom.

- (a) Use of peer command
- (b) Making aggressive statements
- (c) Adoption of well-established posture
- (d) Being authoritarian Answer: 3

274. Which set of learner characteristics may be considered helpful in designing effective teaching-learning systems? Select the correct alternative from the codes given below:

- (i) Prior experience of learners in respect of the subject.
- (ii) Interpersonal relationships of learner's family friends.
- (iii) Ability of the learners in respect of the subject.
- (iv) Student's language background.
- (v) Interest of students in following the prescribed dress code.
- (vi) Motivational-orientation of the students.

Codes:

- (a) (i), (ii), (iii) and (iv)
- (b) (i), (iii), (iv) and (vi)
- (c) (ii), (iii), (iv) and (v)
- (d) (iii), (iv), (v) and (vi) Answer: 2

275. The use of teaching aids is justified on the grounds of:

- (a) attracting students' attention in the class room.
- (b) minimising indiscipline problems in the classroom.
- (c) optimising learning outcomes of students.
- (d) effective engagement of students in learning tasks. Answer: 3

276. Select the alternative which consists of positive factors contributing to effectiveness of teaching: List of factors:

- (a) Teacher's knowledge of the subject.
- (b) Teacher's socio-economic background.
- (c) Communication skill of the teacher.
- (d) Teacher's ability to please the students.
- (e) Teacher's personal contact with students.
- (f) Teacher's competence in managing and monitoring the classroom transactions. Codes:

(1) (b), (c) and (d)

(2) (c), (d) and (f)

(3) (b), (d) and (e)

(4) (a), (c) and (f) Answer: 4

277. Which of the following set of statements represents acceptable propositions in respect of teaching-learning relationships? Choose the correct code to indicate your answer.

- (i) When students fail in a test, it is the teacher who fails.
- (ii) Every teaching must aim at ensuring learning.
- (iii) There can be teaching without learning taking place.
- (iv) There can be no learning without teaching.
- (v) A teacher teaches but learns also.
- (vi) Real learning implies rote learning.

Codes:

- (a) (ii), (iii), (iv) and (v)
- (b) (i), (ii), (iii) and (v)
- (c) (iii), (iv), (v) and (vi)
- (d) (i), (ii), (v) and (vi) Answer: 2

278. Effectiveness of teaching has to be judged in terms of

- (a) Course coverage
- (b) Students' interest
- (c) Learning outcomes of students
- (d) Use of teaching aids in the classroom Answer: 3

279. In which teaching method learner's participation is made optimal and proactive?

- (a) Discussion method
- (b) Buzz session method
- (c) Brainstorming session method
- (d) Project method Answer: 4

280. One of the most powerful factors affecting teaching effectiveness is related to the

- (a) Social system of the country
- (b) Economic status of the society
- (c) Prevailing political system
- (d) Educational system Answer: 4

281. Assertion (A): Formative evaluation tends to accelerate the pace of learning. Reason (R): As against summative evaluation, formative evaluation is highly reliable.

Choose the correct answer from the following code:

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- (c) (A) is true, but (R) is false.
- (d) (A) is false, but (R) is true. Answer: 3

282. Which of the following set of statements best represents the nature and objective of teaching and learning?

- (a) Teaching is like selling and learning is like buying.
- (b) Teaching is a social act while learning is a personal act.
- (c) Teaching implies learning whereas learning does not imply teaching.
- (d) Teaching is a kind of delivery of knowledge while learning is like receiving it.
- (e) Teaching is an interaction and is triadic in nature whereas learning is an active engagement in a subject domain.

Code:

- (1) (a), (d) and (e)

- (2) (b), (c) and (e)
- (3) (a), (b) and (c)
- (4) (a), (b) and (d) Answer: 2

283. From the list given below identify the learner characteristics which would facilitate teaching learning system to become effective. Choose the correct code to indicate your answer.

- (a) Prior experience of learner
 - (b) Learner's family lineage
 - (c) Aptitude of the learner
 - (d) Learner's stage of development
 - (e) Learner's food habits and hobbies
 - (f) Learner's religious affiliation
- Code:
 (1) (a), (c) and (d)
 (2) (d), (e) and (f)
 (3) (a), (d) and (e)
 (4) (b), (c) and (f) Answer: 1

284. Assertion (A): All teaching implies learning. Reason (R): Learning to be useful must be derived from teaching. Choose the correct answer from the following:

- (a) Both (A) and (R) are true and (R) is the correct explanation of (A).
- (b) Both (A) and (R) are true but (R) is not the correct explanation of (A).
- (c) (A) is true, but (R) is false.
- (d) (A) is false, but (R) is true. Answer: 3

285. On the basis of summative tests, a teacher is interpreting his/her students, performance in terms of their wellness life style evident in behaviour. This will be called:

- (a) Formative testing
- (b) Continuous and comprehensive evaluation
- (c) Norm - referenced testing
- (d) Criterion - referenced testing Answer: 4

286. Which one of the following is a key behaviour in effective teaching?

- (a) Using student ideas and contribution
- (b) Structuring
- (c) Instructional variety
- (d) Questioning Answer: 3

287. Which of the following set of statements best describes the nature and objectives of teaching? Indicate your answer by selecting from the code.

- (a) Teaching and learning are integrally related.
- (b) There is no difference between teaching and training.
- (c) Concern of all teaching is to ensure some kind of transformation in students.

- (d) All good teaching is formal innature.
- (e) A teacher is a senior person.
- (f) Teaching is a social act whereas learning is a personal act.

Code:

- (1) (a), (b) and (d)
- (2) (b), (c) and (e)
- (3) (a), (c) and (f)
- (4) (d), (e) and (f) Answer: 3

288. Which of the following learner characteristics is highly related to effectiveness of teaching?

- (a) Prior experience of the learner
- (b) Educational status of the parents of the learner
- (c) Peer groups of the learner
- (d) Family size from which the learner comes. Answer: 1

289. In the two sets given below Set - I indicates methods of teaching while Set - II provides the basic requirements for success/effectiveness. Match the two sets and indicate your answer by choosing from the code: n with student teacher feedback. marks to st. ies the doubtsss itself. rmance of a to parents atnterval. vation is raisedh a question-

Code:	(a)	(b)	(c)	(d)	(2) (b), (c) and (d)
(1)	(i)	(ii)	(iii)	(iv)	(3) (a), (c) and (e)
(2)	(ii)	(iii)	(iv)	(v)	(4) (b), (d) and (f)
(3)	(iii)	(v)	(ii)	(i)	Answer: 4
(4)	(iv)	(ii)	(i)	(iii)	290. Assertion (A): All teaching

Answer: 3

290. From the list of evaluation procedures given below identify those which will be called 'formative evaluation'. Indicate your answer by choosing from the code: (a) A teacher awards grades to students after having transacted the course work. should aim at ensuring learning. Reason (R): All learning results from teaching.

Choose the correct answer from the following code:

- (1) Both (A) and (R) are true, and (R) is the correct explanation of (A).
- (2) Both (A) and (R) are true, but (R) is not the correct explanation of (A).
- (3) (A) is true, but (R) is false.
- (4) (A) is false, but (R) is true. Answer: 3

291. Individual therapy meets the standard of best practices when it includes all of the following EXCEPT

- (a) Theory choice
- (b) Adherence and familiarity with only one theory

- (c) Determination of the cultural relevance of the selected theory
 - (d) Appraisal of the empirical evidence for and against the selected theory for the case at hand.
- Answer: B

292. The interview accomplishes all of the following major social work tasks, EXCEPT:

- (a) The establishment of rapport
 - (b) The gathering of information necessary for assessment
 - (c) The enactment of a therapeutic process
 - (d) The acquisition of declarative knowledge
- Answer: D

293. A generic planned change process of social work practice consists of:

- (a) Rapport (establishment of a working relationship)
 - (b) Assessment
 - (c) Contracting
 - (d) Goal Setting
 - (e) All of the above
- Answer: E

294. Historically direct social work practice has been conceptualized in all of the following ways EXCEPT:

- (a) Casework
 - (b) Case Management
 - (c) Individual psychotherapy
 - (d) Generalist practice
 - (e) Policy practice
- Answer: E

295. Therapy has been informed by all of the following theories EXCEPT

- (a) Pharmacological
 - (b) Psychodynamic
 - (c) Cognitive-Behavioral
 - (d) Narrative
 - (e) All of the above
- Answer: E

296. Indirect practice has been conceptualized over time in all of the following ways EXCEPT:

- (a) As private practice
- (b) As administrative or management practice

- (c) As planning and organizational practice
 - (d) As community organizing and social action practice
 - (e) As policy practice
- Answer: A

297. According to Biesteck, all of the following are core values in direct social work practice, EXCEPT:

- (a) Acceptance
 - (b) Non-judgmental attitude
 - (c) Confidentiality
 - (d) Client self-determination
 - (e) All of the above
- Answer: E

298. Declarative knowledge consist of all of the following, EXCEPT:

- (a) Intuitive and creative knowing in the therapeutic moment
 - (b) A cognitive map of learned (taught) concepts
 - (c) Causal knowledge of individual resilience
 - (d) Causal knowledge of individual vulnerability
- Answer: A

299. All of the following are aspects of tacit knowing EXCEPT:

- (a) Use of highly disciplined and automatic procedural knowing
 - (b) Self-regulated ability to reflect and adjust performance in the therapeutic moment
 - (c) Ability to reflect on action
 - (d) Ability to reflect in action
- Answer: C

300. Managing transference and counter-transference is critical in which one of the following theory-based models of therapy?

- (a) Behavior modification
 - (b) Cognitive-behavioral therapy
 - (c) Psychodynamic models of therapy
 - (d) Solution-focused models of therapy
- Answer: C

301. Emphasis on the construction of reality is emphasized in which one of the following theory-based models of therapy?

- (a) Behavior-Modification
- (b) Strengths-based model

- (c) Psychodynamic models
- (d) Power alignments Answer: C

302. All of the following are indicators that the helping relationship or therapeutic process is not going well EXCEPT:

- (a) The client frequently misses, cancels, or is tardy to appointments
- (b) The client asks questions and seeks information about which the worker is not knowledgeable
- (c) The client rambles on at length; focuses on irrelevant matters or details
- (d) The client minimizes the problem or claims miraculous improvement Matching Answer: B

303. Some of the greatest advances in human civilization in the 20th century have been:

- A. the discovery of antibiotics
- B. the discovery of DNA
- C. the marked lengthening of the average life span
- D. the improvement of public health
- E. all of the above Answer: E

304. At present, the longest living human, has lived the following number of years:

- A. 122
- B. 114
- C. 130
- D. 150
- E. none of the above Answer: A

305. Currently, the major cause of death in old age, in the US is:

- A. cardiovascular diseases: heart disease and stroke
- B. cancer
- C. pneumonia
- D. diabetes
- E. dementia Answer: A

306. By "rectangularization" of the survivorship curve, we mean:

- A. compression of morbidity
- B. expansion of morbidity
- C. worse performance of the ADLs
- D. better performance of the IADLs
- E. none of the above Answer: A

307. There are some ethnic/gender differences in the causes of death in the US population EXCEPT:

- A. Alzheimer's dementia is more frequent in women than men irrespective of ethnicity

- B. in men, diabetes is more frequent in American Indians and Alaska natives than whites
- C. in men, hypertension is more frequent in African Americans than in all other ethnic groups
- D. cancer is more frequent in whites than in all other groups
- E. the frequency of heart disease is the same across all ethnic groups Answer: D

308. Which of the following is DIRECTLY CORRELATED with longevity:

- A. Basal Metabolic Rate
- B. Stress
- C. Length of Growth Period
- D. Reproductive Fecundity
- E. All of the Above Answer: C

309. Which of the following can induce Cellular Senescence:

- A. Replicative Senescence
- B. DNA Damage
- C. Oncogene Expression
- D. Super-Mitogenic Signals
- E. All of the Above Answer: E

310. Which of the following is NOT a source of free radicals:

- A. p450 enzyme
- B. Macrophages and Neutrophils
- C. Alloxan
- D. Lipid Peroxidation
- E. None of the Above Answer: D

311. Which of the following

is generally true for sex differences after 65 years of age:

- A. men live longer but have more physical trauma injuries than women
- B. women live longer but have greater dependency (more disabilities) than men
- C. women live longer and have fewer disabilities than men
- D. there is no difference in life expectancy but women have fewer disabilities
- E. none of the above Answer: B

312. How have the major causes of death in the U.S. changed over the past century:

- A. shift from accidents and natural disasters (e.g. floods, earthquakes, etc.) toward microbial diseases
- B. the major causes of death have remained unchanged
- C. shift from microbial diseases and cancer toward natural disasters and food-borne illnesses
- D. shift from microbial diseases toward cardiovascular disease and cancer
- E. shift from cancer and accidents toward microbial diseases Answer: D

313. What happens when telomere length is critically shortened?

- A. cells undergo irreversible arrest of cell proliferation
- B. they show altered function
- C. alteration in function is universal
- D. alteration in function is cell-type specific
- E. all of the above

Answer: A

314. All the following statements regarding telomerase are true, EXCEPT:

- A. somatic cells have telomerase activity throughout their lives because of their high activity levels
- B. germline cells have telomerase activity because of the importance of retaining all their genetic information
- C. telomerase is expressed in 80% of tumor cells
- D. telomerase is expressed in some stem cells but it is highly regulated
- E. telomerase overcomes telomere shortening

Answer: A

315. How are anti-oxidants believed to be helpful to our bodies?

- A. they antagonistically bind to oxygen molecules, thus preventing aerobic pathways
- B. they enhance free-radical formation, thus increasing the efficiency of cellular processes
- C. they "quench" the reactivity of reactive oxygen species, thus preventing their detrimental interactions with other cellular activities
- D. they complex with vitamins in our bodies to produce reactive oxygen species, which are then used to enhance aerobic pathways
- E. none of the above

Answer: C

316. Ageism

- A. has the same meaning as senescence
- B. is a term indicating discrimination or prejudice against the elderly
- C. has the same meaning as aging
- D. none of the above
- E. all of the above

Answer: B

317. In elderly humans, "successful aging" is characterized by:

- A. presence of illnesses but no decline in function
- B. absence of illnesses and absence of decline in function
- C. decline in function but no illnesses
- D. changes in chronological age but not physiological age
- E. none of the above

Answer: B

318. Functional competence and, inversely, degree of disability in the elderly may be measured by:

- A. Counting the number of activities of day living that the old person can perform

- B. Counting the number of instrumental activities of day living that the old person can perform
 - C. Evaluating the degree of performance in both activities and the absence of disabilities
 - D. Estimating the degree of functional independence that allows the old person not to be institutionalized in a nursing home
 - E. all of the above
- Answer: E

319. The number of centenarians, in the last century as compared to the previous centuries has:

- A. remained unchanged worldwide
 - B. increased in developed countries
 - C. increased in developing countries
 - D. decreased in developing countries
 - E. decreased in developed countries
- Answer: B

320. Mice with cells that do not senesce die young of cancer because:

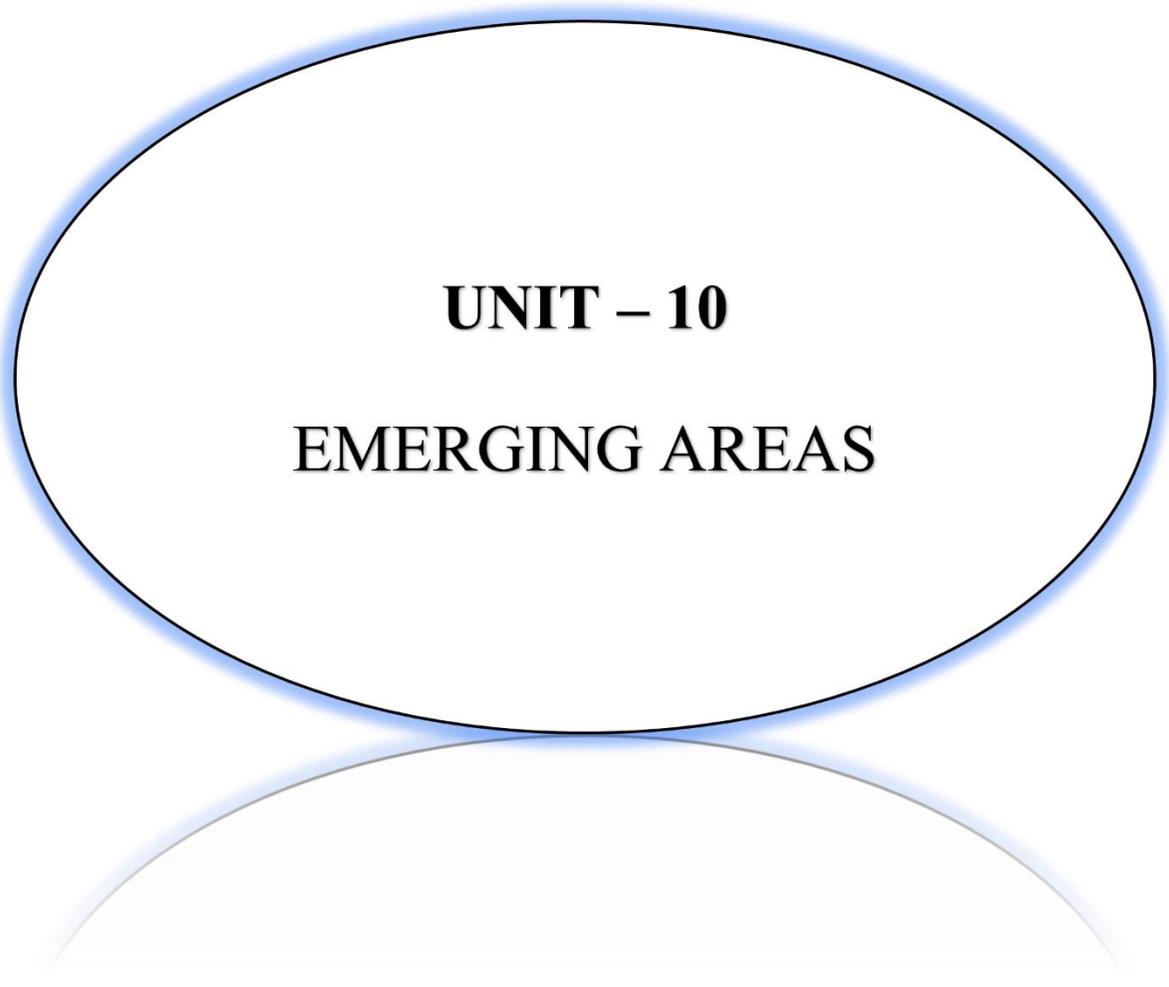
- A. Cellular senescence represents an important tumor suppression mechanism
 - B. tumor cells may be considered immortal
 - C. tumor cells continue to divide and cause death of the host organism
 - D. the two most important tumor suppressor pathways (p53 & pRB) are missing
 - E. all of the above
- Answer: E

321. Disease in the elderly has the following characteristics, EXCEPT:

- A. symptoms are vague and atypical
 - B. diseases are chronic as opposed to acute
 - C. diseases are acute as opposed to chronic
 - D. Diseases often affect many systems simultaneously
 - E. diseases may induce responses to treatment different from those of young & adult persons
- Answer: C

322. Aging and disuse have many similarities; in both cases the following responses occur EXCEPT:

- A. maximum oxygen consumption decreases
 - B. cardiac output decreases
 - C. blood pressure increases
 - D. in all cases, only young people are able to benefit from exercise
 - E. in all cases both young and old people are able to benefit from exercise.
- Answer: D



UNIT - 10

EMERGING AREAS

EMERGING AREAS

WHAT IS ISSUES OF GENDER, POVERTY, DISABILITY, AND MIGRATION: CULTURAL BIAS AND DISCRIMINATION. STIGMA, MARGINALIZATION, AND SOCIAL SUFFERING; CHILD ABUSE AND DOMESTIC VIOLENCE?

ISSUES OF GENDER, POVERTY, DISABILITY, AND MIGRATION: CULTURAL BIAS AND DISCRIMINATION. STIGMA, MARGINALIZATION, AND SOCIALSUFFERING; CHILD ABUSE AND DOMESTIC VIOLENCE

Issues of Gender

ANNCREASE GENDER REPRESENTATION/ GENDER BALANCE

One of the main objectives set by UNI Global Union, through its Equal Opportunities Department has been to attain productive development based on gender equality. We regard this principle as essential to achieving sustainable development and true social justice for everyone.

The Equal Opportunitites Department carries out programmes, campaigns and other activities in order to fulfil this goal, both within the organization and among our affiliates.

VIOLENCE AGAINST WOMEN

The socially and culturally built hierarchy between the genders holds certain power relationships. Any power relationship is asymmetrical by definition, i.e. one of the subjects of the relationship has power and the other one does not.

Usually, men are socially regarded as being of higher value. This asymmetrical situation is present in many areas of social life and can lead to violence (physical, verbal, or psychological). Studies show that more than 1/3 of the women around the world have experienced violence at some point in their lives and it can happen at the workplace.

SEXUAL HARASSMENT

Sexual harassment is a form of violence that through a show of power intimidates, humiliates, and affects another person's dignity. This behavior is sexual in nature (physical contacts, sexual advances, comments and jokes with sexual content, exhibiting pornographic material or making inappropriate comments) and undesired; it is perceived by the victim as a condition to keep the job, or as one that creates a hostile, intimidating, and humiliating work environment.

THE WAGE GAP

One of the areas at the workplace where gender differences are seen is the difference in the remuneration that men and women workers receive for work of equal value. A study by the International Labour Organization in 2013 shows that the global wage gap is 23%.

However, this number does not account for the millions of women working in the informal economy with no protection. Also, many countries lack reliable statistics to prepare more accurate reports, therefore, this already high figure will be even higher. Access to education continues to be key to bridging the wage gap. However, it is not the only instrument, since women with higher education are at the ends of the gap with their male peer. For that reason, UNI has pledged to work to make ILO Convention 100 requiring equal remuneration for men and women workers for work of equal value effective in every work site.

WOMEN'S HEALTH

Health is a universal human right. That's why, irrespective of religion, age or where we live, we have a right to the information and the healthcare services that allow us to care for our bodies and our quality of life.

It is not just being free of illnesses, but also having access to reasonable standards of living, housing, food, decent work, as well as appropriate level of medical assistance so that we can develop our full potential as individuals.

To be able to truly achieve gender equality, we need to look at the health and well-being of women. This is a precondition for the promotion of the sustainable growth of our communities.

WORK - LIFE BALANCE

Globalization of the economy has brought about changes in the labour market structure and labour organization, which had remained stable throughout the 20th century. The traditional model of sexual division of labour had placed productive tasks (supporting and providing for the family) in the hands of men and reproductive ones in the hands of women (caring for children and the elderly, housekeeping chores.)

Today, women increasingly share the provider role with men. However, there has not been a similar change in the distribution of domestic work. For that reason, women with both roles (productive and reproductive) work more hours than men, get less rest, and are burdened with a heavy workload that puts their health at risk and limits their chances of developing a professional career.

We must then reflect upon these issues and devise policies intended to balance work and family life to overcome gender inequalities, so that both men and women may have access to a full family life and a professional career.

In many parts of the world, technological innovations such as artificial intelligence (AI), robotics and machine learning are impacting society. These new technologies allow us to communicate faster, share information and feel closer to each other. They are, today, an essential part of our lives and provide us with unprecedented opportunities to advance in areas ranging from education to political participation.

Its use and dissemination is so common that we do not see the impact they have on women. Technology is a reflection of reality, and if we do not work to eradicate the inequalities and prejudices that they transmit, we will continue to widen those gaps we want to close today.

The UNI Equal Opportunities department has begun to address the issue of the impact of digitalization on women by writing conceptual documents that will help continue discussions on this issue.

Our first document: "Digitization from a gender perspective", was intended to explain what digitalization means, and how it will affect the world of work, in particular, working women.

A second document: "The road to digitalization without gender" was written as part of a

collaboration with the European group of experts "Friends of Europe" for its report "Policy options for a digital era". This second document explores further the impact of technology and artificial intelligence on women, the prejudices that permeate the development of these technologies and how they contribute to the gender gap, promoting possible solutions to these issues.

GENDER ISSUES IN INDIA:

Political Economy

In 2016, India ranked 130 out of 146 in the Gender Inequality Index released by the UNDP. It is evident that a stronger turn in political discourse is required, taking into consideration both public and private spaces. The normalization of intra-household violence is a huge detriment to the welfare of women. Crimes against women have doubled in the period between 1991 and 2011. NFHS data reports that 37 per cent of married women in India have experienced physical or sexual violence by a spouse while 40 per cent have experienced physical, sexual or emotional violence by a spouse. While current policy discourse recommends employment as a form of empowerment for women, data presents a disturbing correlation between female participation in labour force and their exposure to domestic violence. The NFHS-3 reports that women employed at any time in the past 12 months have a much higher prevalence of violence (39-40 per cent) than women who were not employed (29 per cent). The researchers advocate a multi-faceted approach to women's empowerment beyond mere labour force participation, taking into consideration extra-household bargaining power.

Gender inequality extends across various facets of society. Political participation is often perceived as a key factor to rectify this situation. However, gender bias extends to electoral politics and representative governance as well. The relative difference between male and female voters is the key to understanding gender inequality in politics. While the female voter turnout has been steadily increasing, the number of female candidates fielded by parties has not increased. More women contest as independents, which does not provide the cover for extraneous costs otherwise available when they are part of a political party.

However, women also act as agents of political change for other women. In the Bihar elections in 2005, when re-elections were held, the percentage of female voters had increased from 42.5 to 44.5 percent while those of male voters declined from 50 to 47 per cent in the interim period of eight months. As a direct result, 37 per cent of the constituencies saw anti-incumbency voting. The average growth rate of women voters was nearly three times in those constituencies where there was a difference in the winning party. District-wise disaggregation of voter registration also supports this hypothesis in the case of Bihar indicating the percolation of the winds of change. This illustration proves that women are no longer under the complete control of the men in their family in terms of electoral participation. The situation is only bound to improve from here. With the introduction of Electronic Voting Machines (EVMs), vulnerable sections like women now have more freedom of choice in their vote. Further, poll related incidents of violence against women have significantly decreased since the phased introduction of EVMs across multi-level elections in India. Extending the conversation to political representation is the next phase in the conversation. Women make up merely 22 per cent of lower houses in parliaments around the world and in India, this number is less than half at 10.8 per cent in the outgoing Lok Sabha. A steady increase in female voter participation has been observed across India, wherein the sex ratio of voters (number of female voters vis-à-vis male) has increased from 715 in the 1960s to 883 in the 2000s. Our studies have shown that women are more likely to contest elections in states with a skewed gender ratio. In the case of more developed states, they seek representation through voting leading to an

increase in voter participation.

The situation can be rectified by providing focused reservation for those constituencies with a skewed sex ratio. Reducing the entry costs (largely non-pecuniary in nature – cultural barriers, lack of exposure) for women in order to create a pipeline of female leaders is another solution. These missing women, either as voters or leaders point to the gross negligence of women at all ages.

FINANCIAL INCLUSION

In the developing world, women have traditionally been the focus of efforts of financial inclusion. They have proved to be better borrowers (40 per cent of Grameen Bank's clients were women in 1983. By 2000, the number had risen to 90 per cent) – largely attributed to the fact that they are less mobile as compared to men and more susceptible to peer pressure. However, institutions in microfinance are exposed to the trade-off between market growth and social development since having more female clients lead to the inevitable drip-down of social incentives. As an attempt to overcome this hurdle, a larger role can be played by donors with a gender driven agenda, for the financial inclusion sector will drive the idea further.

Gendered contextualisation of products is highly necessary for microfinance institutions (MFIs) – men and women do not ascribe to choices in a similar fashion. Trends emerging from prior research indicates that when health insurance coverage was held under the MFI sector, by both men and women, women benefited from the coverage only so far as they were the holders and not using spousa status (if their husbands were insured). Thus healthcare seeking behaviour becomes an important factor to be considered in insurance coverage under the MFIs.

The JAM trinity – Jan Dhan Yojana, Aadhar, Mobile – can be used to improve financial inclusion from a gender perspective as well. The metrics to consider would be the number of Jan Dhan accounts held by women, percentage of women holding Aadhar cards and access to mobile connectivity for women.

HEALTH

In terms of healthcare focusing on women, the Janani Suraksha Yojana (JSY) and National Health Mission are vital to the policy landscape. The JSY has improved maternal healthcare in India through the emphasis on institutional deliveries. Increase of 22 per cent in deliveries in government hospitals, was mirrored by an 8 per cent decline in childbirth at private hospitals and a 16 per cent decline in childbirth at home. The National Health Mission's ASHA led to greater awareness and education of pregnant women as well as an increase in institutional maternal and neonatal healthcare. Improved infrastructure for maternal and neo-natal has been observed in community hospitals, in addition to the introduction of ambulance services.

A gendered increase in seek care is observed with a large 13 per cent increase in the number of women who report being sick in the last 15 days, driving the overall reportage. Further, an eight per cent decline in rural women seeking private healthcare, has been reported, while a 58 per cent increase in women seeking hospitalization has been reported. Further disaggregated, the data shows a 75.7 per cent increase for rural women seeking healthcare. The overall increase in usage of public hospitals is almost entire driven by rural women who saw an increase of 24.6 per cent in utilisation of public hospitals over the 10 years (2004-2014). Our results show that the JSY had a significant, positive impact on overall hospitalisation of women in India. It increased the probability of a woman being hospitalised by approximately 1.3 per cent.

The healthcare sector in India has largely focused on maternal healthcare for women. The importance of research on mental health has been ignored in policy discourse. The significant relationship that mental health bears on violence has also been explored in further research. Every fifth suicide in India is that of a housewife (18 per cent overall) – the reportage of suicide deaths has been most consistent among housewives as a category, than other categories. India is the country with the largest rate of female deaths due to ‘intentional violence’.

Our work on childhood violence shows that girls are twice more likely to face sexual violence than boys before the age of 18. Larger the population of educated females in the country, lesser is the incidence of childhood violence at home – including lesser violent discipline, physical punishment as well as psychological aggression. Additionally, the lifetime experience of sexual violence by girls is strongly correlated with the adolescent fertility rate in a country. Further, a strong relationship is observed between female experience of sexual violence and female labour force participation within a country. The results show that the higher the labour force participation by women in a country, the higher is the incidence of sexual violence against them. This could be indicative of adverse working conditions within labour markets, and the difficulty of access to labour markets by young women in a country

POVERTY IN INDIA

Two-thirds of people in India live in poverty: 68.8% of the Indian population lives on less than \$2 a day. Over 30% even have less than \$1.25 per day available - they are considered extremely poor. This makes the Indian subcontinent one of the poorest countries in the world; women and children, the weakest members of Indian society, suffer most.

India is the second most populous country after China with about billion people and is the seventh largest country in the world with an area of 3,287,000 km². The highly contrasted country has enjoyed growth rates of up to 10% over many years and is one of the largest economies in the world, with a gross domestic product (GDP) of 1,644 billion US dollars. But only a small percentage of the Indian population has benefited from this impressive economic boom so far, as the majority of people in India are still living in abject poverty.

Poverty in India: from the village to the slum



More than 800 million people in India are considered poor. Most of them live in the countryside and keep afloat with odd jobs. The lack of employment which provides a livable wage in rural areas is driving many Indians into rapidly growing metropolitan areas such as Bombay, Delhi, Bangalore or Calcutta. There, most of them expect a life of poverty and despair in the mega-slums, made up of millions of corrugated ironworks, without sufficient drinking water supply, without

garbage disposal and in many cases without electricity. The poor hygiene conditions are the cause of diseases such as cholera, typhus and dysentery, in which especially children suffer and die.

Poverty in India impacts children, families and individuals in a variety of different ways through:

- High infant mortality
- Malnutrition
- Child labour
- Lack of education
- Child marriage
- HIV / AIDS

The high infant mortality



1.4 million children die each year in India before their fifth birthday. In addition to Nigeria, Pakistan, the Democratic Republic of the Congo and China, India is one of the countries with the highest child mortality rates. Pneumonia, malaria and diarrheal diseases as well as chronic malnutrition are the most frequent causes of death.

Malnutrition - not even a bowl of rice a day India is one of the world's top countries when it comes to malnutrition: More than 200 million people don't have sufficient access to food, including 61 million children. 7.8 million infants were found to have a birth weight of less than 2.5 kilograms - alarming figures for a country commonly referred to as the emerging market.

Child labour - no time to play and learn

Although child labour for children under the age of 14 in India is prohibited by law, according to official figures, 12.5 million children between the ages of 5 and 14 are working. Aid agencies assume that in reality, there are many more estimating that 65 million children between 6 and 14 years do not go to school. Instead, in order to secure survival, it is believed that Indian children contribute to the livelihood of their families; they work in the field, in factories, in quarries, in

private households and in prostitution

Lack of education - no opportunities without education

According to UNICEF, about 25% of children in India have no access to education. The number of children excluded from schools is higher among girls than boys. Although women and men are treated equally under Indian law, girls and women, especially in the lower social caste, are considered inferior and are oppressed by their fathers, brothers and husbands. Without education, the chance of finding a living wage from employment in India is virtually hopeless.



Child marriage - the early end of childhood

In spite of banning minors from marrying in 2006, it is still widespread in many regions of India. The main leaders in this practice are young girls, who are still children themselves and become mothers too early. Many of them die at birth. According to an investigation by the medical journal The Lancet, 44.5% of girls are still married in India before they are of legal age. Due to poverty, many parents encourage early marriages for their daughters in hopes of better lives for them.

DISABILITY IN INDIA

As per Census 2011, in India, out of the 121 Cr population, about 2.68 Cr persons are 'disabled' which is 2.21% of the total population. In an era where 'inclusive development' is being emphasised as the right path towards sustainable development, focussed initiatives for the welfare of disabled persons are essential. This emphasises the need for strengthening disability statistics in the Country.

There are ample reasons for developing a sound national disability statistics. Information on their

socio - demographic profile is essential for welfare of disabled persons. Information about their functional status is important to identify needs since two individuals with the same impairment may face different types of difficulties in undertaking certain activities, and so have different needs that require different kinds of interventions.

Functional status data is essential for determining the broader social needs of persons with disabilities, such as provision of assistive technology for use in employment or education or broader policy and laws. Population disability data is essential for monitoring the quality and outcomes of policies for persons with disabilities. In particular, these data help to identify policy outcomes that maximize the participation of persons with disabilities in all areas of social life from transportation and communication, to participation in community life. Finally, with complete and reliable disability statistics, state agencies will have the tools for assessing the cost-effectiveness of policies for persons with disabilities, which in turn can provide the evidence to persuade governments of their ultimate benefit for all citizens.

The National Policy for Persons with Disabilities (2006) recognizes that Persons with Disabilities are valuable human resource for the country and seeks to create an environment that provides equal opportunities, protection of their rights and full participation in society. To facilitate the national objective, there is a need for collection, compilation and analysis of data on disability.

A number of International commitments and guidelines came into effect in the recent past targeting the welfare of the disabled persons. India is a signatory to the 'Declaration on the Full Participation and Equality of People with Disabilities in the Asia Pacific Region' (2000). India has ratified the 'UN Convention on the rights of Persons with Disabilities' (2008). India is also a signatory to the 'Biwako Millennium Framework' (2002) for action towards an inclusive, barrier free and rights based society.

The 'Biwako Plus Five (2007): further efforts towards an inclusive, barrier-free and rights-based society for persons with disabilities in Asia and the Pacific' added the emphasis. The Incheon Strategy to "Make the Right Real" for Persons with Disabilities in Asia and the Pacific (2012) provides the Asian and Pacific region and the world with the first set of regionally agreed disability inclusive development Goals. The Incheon strategy will enable to track progress towards improving the quality of life, and the fulfilment of the rights, of the region's persons with disability. The Sustainable Development Goals (2015) pledges for 'leaving no one behind'. Recognizing that the dignity of the human being is fundamental, the SDGs wish to see the Goals and targets met for all nations and peoples and for all segments of society and to endeavour to reach the furthest behind first.

The implementation and monitoring of these international commitments demand sound database of disabled persons. Issues in measuring disability Some of the important issues being faced while developing a strong disability statistics are as follows:

DEFINING DISABILITY:

The definition of the population with disabilities is a key element in the design of a data collection activity, for it sets the scope and coverage of the whole data collection process. From the conceptual point of view, there is no universal definition of what constitutes a disability or of who should be considered as having a disability. Moreover, there is no one static condition of disability. A disability is a result of the interaction between a person with a health condition and a particular

environmental context. Individuals with similar health conditions may not be similarly disabled or share the same perception of their disability, depending on their environmental adaptations. For example, having access to technical aids, services or medication, or physical adaptation to the environment may allow individuals to overcome their disabling conditions. Disability is not an all-or-nothing phenomenon but involves degrees of difficulty, limitation or dependence, ranging from slight to severe. Questions should be designed to capture those with severe as well as those with less severe forms of disabling conditions and should take into account any assistive devices or accommodations that the person may have. Coverage: Different purposes require different disability data. Eliciting information:

In places where disability is a stigma, people may be reluctant to report it. Also, this being a very sensitive question, the investigators need to be adequately trained to collect data on disabilities. The design of questions to identify persons in the population with disabilities presents complex problems. But efforts are to be made to design the questionnaire in such a manner that, all the target population could be correctly identified. Emerging data requirements in the context of recent international commitments Incheon Strategy to “Make the Right Real” for Persons with Disabilities in Asia and the Pacific The Governments of the ESCAP region gathered in Incheon, Republic of Korea, from 29 October to 2 November 2012 to chart the course of the new Asian and Pacific Decade of Persons with Disabilities for the period 2013 to 2022 and adopted the Incheon strategy which comprises 10 goals, 27 targets and 62 indicators. The Incheon strategy builds on the Convention on the Rights of Persons with Disabilities (CRPD) and the Biwako Millennium Framework for Action and Biwako Plus Five towards an Inclusive, Barrier – free and Rights - based Society for Persons with Disabilities in Asia and the Pacific. This will enable the region to track the progress towards improving the quality of life, and the fulfilment of the rights of the region’s persons with disabilities. Goal 8 of the Incheon strategy specifically aims to ‘Improve the reliability and comparability of disability data’.

MEASURING DISABILITY IN INDIA

The UN convention on the Persons with disabilities and its Optional Protocol was adopted on 13 December, 2006 at the United Nations Headquarters in New York. The Convention came into effect on 3 May, 2008. The Convention is intended as a human rights instrument with an explicit, social development dimension. It adopts a broad categorisation of persons with disabilities and reaffirms that all persons with all types of disabilities must enjoy all human rights and fundamental freedoms.

It clarifies and qualifies how all categories of rights apply to persons with disabilities and identifies areas where adaptations have to be made for persons with disabilities to effectively exercise their rights and areas where their rights have been violated, and where protection of rights must be reinforced.

The purpose of the UN Convention on the Rights of Persons with Disabilities (UN CRPD) is to promote, defend and reinforce the human rights of all persons with disabilities. International Classification of Functioning, Disability and Health (ICF) The International Classification of Functioning, Disability and Health, known more commonly as ICF, provide a standard language and framework for the description of health and health-related states. Like the first version published by the World Health Organization for trial purposes in 1980, ICF is a multipurpose classification intended for a wide range of uses in different sectors. It is a classification of health and health-related domains – domains that help us to describe changes in body function and structure, what

a person with a health condition can do in a standard environment (their level of capacity), as well as what they actually do in their usual environment (their level of performance).

SAMPLE SURVEYS ON DISABILITY BY NSSO

National Sample Survey Office (NSSO), made its first attempt to collect

- information on the number of physically handicapped in its 15th round (July 1959- June 1960) which was confined to rural areas only. In NSSO 16th round (July 1960 – June 1961) the coverage was extended to
- urban areas. The subject was again taken up for nationwide survey in its 24th round (July 1969- June 1970) and 28th round (October 1973- June 1974). The physical handicaps covered in the above mentioned surveys were not
- always same and information was collected through survey schedules meant for other subjects. First comprehensive survey in NSS 36th round (July- Dec 1981) followed by a
- survey in 47th round (July- December 1991) to cover all persons with one or more of the three physical disabilities – visual, communication (ie. Hearing and or speech) and locomotor. The last survey was carried out by NSS in its 58th round (July- December
- 2002), which extended the coverage by mental disability in addition to the three physical disabilities (visual, communication an
- locomotor). Along with the particulars of physical and mental disabilities, the socio economic characteristics of the disabled such as their age, literacy, employment, vocational training etc were collected.

SOCIOCULTURAL BIASES AND DISCRIMINATION

The presence and persistence of sociocultural biases and discriminatory attitudes and practices can be readily identified as major contributors to vulnerability. Bias and discrimination are in a sense acts of social exclusion, as they prevent the groups that are the victims of those acts from fully participating in and benefiting from the wealth, power, knowledge and decision-making capacities of the larger society.

At their worst, socio-economic biases and discrimination can produce feelings of disempowerment, hopelessness and despair for the future, further exacerbating vulnerability among the excluded groups. The inability to provide input to important policy decisions leaves them powerless and voiceless, resulting in their legitimate interests not being protected. Consequently, national policies and development programmes do not necessarily benefit those that are disenfranchised.

Still, worse, their interests may even be sacrificed in the pursuit of such policies and programmes. As a result, social groups, households and individuals subject to such misperception and discrimination experience greater vulnerability to social exclusion. 206. The following are presented below as illustrations of the negative effects of bias and discrimination: the images and misperceptions of older persons; the vulnerabilities experienced by migrants; discrimination against the disabled; groups particularly a risk in situations of conflict; and the lack of respect for traditional knowledge and cultures of indigenous persons.

IMAGES AND MISPERCEPTIONS OF OLDER PERSONS

On one level, perceptions of older persons follow the trajectory of a society's culture, religion, language, history and level of development. On another, they follow social conventions that adhere to established precedents and, once rooted, are difficult to alter. The social convention of

classifying people on the basis of their age has enduring consequences that can create significant barriers to access and participation. Older persons are critical and active partners in families and societies through the care they provide to family members who might otherwise require more formal treatment; through the care and education they provide to children whose parents cannot afford childcare or who migrate elsewhere for work; through the countless other forms of volunteer work that they perform in communities and institutions everywhere; and through their help in conflict resolution and the rebuilding of communities following emergencies. In addition, older persons possess traditional knowledge and overall survival strategies accumulated over a lifetime of experience.

Paradoxically, however, older persons are cast in distorted images that inflate their physical and mental deterioration and dependence. The outcome is an anachronistic message that, on the broader level, colours an entire phase of life. It obscures older persons' contributions and generates ageism, discrimination and exclusion and, ultimately, contributes to a loss of rights in the social, economic and political spheres. Routine media misrepresentation that idolizes youth and views ageing as a time of incapacity and stagnation is particularly damaging to older persons, who already suffer greater exclusion, especially in an era of rapid technological change in which authority is often passed to younger members of society. Significantly, such images are not lost on centres of influence and power, such as employers, donors and policy makers – decision makers who can have an impact on older persons' access to structures and resources and therefore mitigate or increase vulnerability.

Globalization of the media has contributed to spreading ageism to societies in which it was traditionally unknown. The forces of globalization that have ushered in consumerism and individualism in developing countries have compounded the devaluation of the status of older persons, encouraging the view that they are burdens and a financial drain. The effects are becoming visible far beyond the local level, with a lack of opportunities for older persons, combined with the absence of economic assets and added responsibilities owing to the outmigration of younger adults, conspiring to force older persons into greater economic and social dependence. Negative self-image is inextricably bound up with stereotypes and is another factor that leads to social exclusion. Older persons with strong tendencies towards a negative self-image are also those who are in the greatest need of support. Those in poverty and conflict show a marked decline in self-esteem as they age and tend to share a view of ageing as a time of worthlessness, incapacity and loss of status that leads to dependence. For many, fears and self-doubt accumulate to such an extent that what is feared – exclusion and greater physical and economic dependence – becomes more likely. Low self-esteem becomes a risk in itself and helps to foster an image of a population with whom no one, including older persons themselves, wants to identify.

The perpetuation of misperceptions of ageing has a political impact as well. The expression "intergenerational conflict", which has appeared in the public discourse, suggests that, if steps are not taken, individual old-age pension and health-care security, or worse, national or even global financial stability, may be threatened with disruption. Such messages suggest a need to assign responsibility and ultimately serve as a pretext for cutting back on old-age provisions. Perceptions that an ageing society will deepen social conflict, however, are not so rooted in prejudices as to hold any particular age group responsible. Rather, social, economic and politically uncertain environments, with the support of the media, are reshaping attitudes about society's unpreparedness to adjust to a changed demographic structure that has no precedent and therefore no previous

basis from which to proceed.

Women and men move through the ageing process in different ways and encounter different obstacles and relative disadvantages en route. For women, balancing work and family responsibilities can be all-consuming. Their role as principal caregiver in the family often lingers into old age, when they care for their spouses and/or, in areas ravaged by poverty and disease, including HIV/AIDS, for their grandchildren and other family members who are orphaned or sick.

MIGRANTS' VULNERABILITIES

Migration is a pervasive issue that has a bearing on the economy, the social fabric and the political life of many countries. Viewpoint on migration are polarized to the degree that it is difficult to hold a rational debate on the issue. Against such a background of contention, the human dimension of international migration has often been missing from the policy agenda, and many migrants have increasingly found themselves vulnerable

First, in the course of the migration process, individuals lose the security of essential family-, community- and nation-based support structures, including traditional institutions that regulate power, decision-making and protection, while at the same time they are exposed to a host of hazards for which they are largely unprepared. To a significant extent, the vulnerability of migrants stems from the nature of the immigration process, which remains, in much of the world – apart from a handful of traditional countries of immigration – long, challenging and poorly organized. During the course of the immigration process, migrants often receive little assistance from the host country and end up relying on immigrant communities and immigration networks of questionable legitimacy. In trying to circumvent admissions delays and restrictions, an increasing number of migrants are putting themselves at risk by electing to be smuggled.

STIGMA

Stigma is when someone views you in a negative way because you have a distinguishing characteristic or personal trait that's thought to be, or actually is, a disadvantage (a negative stereotype). Unfortunately, negative attitudes and beliefs toward people who have a mental health condition are common.

Stigma can lead to discrimination. Discrimination may be obvious and direct, such as someone making a negative remark about your mental illness or your treatment. Or it may be unintentional or subtle, such as someone avoiding you because the person assumes you could be unstable, violent or dangerous due to your mental illness. You may even judge yourself.

Some of the harmful effects of stigma can include:

- Reluctance to seek help or treatment
- Lack of understanding by family, friends, co-workers or others
- Fewer opportunities for work, school or social activities or trouble finding housing
- Bullying, physical violence or harassment
- Health insurance that doesn't adequately cover your mental illness treatment
- The belief that you'll never succeed at certain challenges or that you can't improve your situation

STEPS TO COPE WITH STIGMA

Here are some ways you can deal with stigma:

- **Get treatment.** You may be reluctant to admit you need treatment. Don't let the fear of being labeled with a mental illness prevent you from seeking help. Treatment can provide relief by identifying what's wrong and reducing symptoms that interfere with your work and personal life.
- **Don't let stigma create self-doubt and shame.** Stigma doesn't just come from others. You may mistakenly believe that your condition is a sign of personal weakness or that you should be able to control it without help. Seeking counseling, educating yourself about your condition and connecting with others who have mental illness can help you gain self-esteem and overcome destructive self-judgment.
- **Don't isolate yourself.** If you have a mental illness, you may be reluctant to tell anyone about it. Your family, friends, clergy or members of your community can offer you support if they know about your mental illness. Reach out to people you trust for the compassion, support and understanding you need.
- **Don't equate yourself with your illness.** You are not an illness. So instead of saying "I'm bipolar," say "I have bipolar disorder." Instead of calling yourself "a schizophrenic," say "I have schizophrenia."
- **Join a support group.** Some local and national groups, such as the National Alliance on Mental Illness (NAMI), offer local programs and internet resources that help reduce stigma by educating people who have mental illness, their families and the general public. Some state and federal agencies and programs, such as those that focus on vocational rehabilitation and the Department of Veterans Affairs (VA), offer support for people with mental illness.
- **Get help at school.** If you or your child has a mental illness that affects learning, find out what plans and programs might help. Discrimination against students because of a mental illness is against the law, and educators at primary, secondary and college levels are required to accommodate students as best they can. Talk to teachers, professors or administrators about the best approach and resources. If a teacher doesn't know about a student's disability, it can lead to discrimination, barriers to learning and poor grades.
- **Speak out against stigma.** Consider expressing your opinions at events, in letters to the editor or on the internet. It can help instill courage in others facing similar challenges and educate the public about mental illness.

Others' judgments almost always stem from a lack of understanding rather than information based on facts. Learning to accept your condition and recognize what you need to do to treat it, seeking support, and helping educate others can make a big difference.

SOCIAL DETERMINANTS OF CHILD ABUSE

Globally, child abuse (or child maltreatment) is a significant public health problem extending beyond culture, social context and race. Child abuse consists of any acts of commission or omission by a parent, caregiver or other adult resulting in harm, potential for, or threat of harm to a child (0-18 years of age) even if the harm is unintentional. The World Health Organization (WHO) estimates that 40 million children aged 0-14 years globally suffer from abuse and neglect that require health and social care.

The extent and trend of national or global rates, and determinants of child abuse are largely unknown. Studies in Egypt are sparse, estimating that 37% of children in Egypt suffer physical punishment with varying degrees of severity; ⁵ these acts of punishment, presumably committed as acts of child discipline, are engendered by a culture that places a high premium on child

obedience and the positive effects of discipline

Social determinants of health (SDH) are conditions in which people are born, grow, live, work and age, including the health system. These conditions provide the freedom people need to live lives they value, and are shaped by the distribution of money, power and resources at global, national and local levels. SDH that perpetuate child abuse can be avoided by reasonable societal level action; however, that they are not avoided indicates that they are unfair, unnecessary, unjust, and therefore inequitable. Given children's need for safe, healthy, nurturing, and responsive living environments, the SDH that perpetuate child abuse are numerous, and need to be examined to understand the association between child abuse and intimate partner violence (IPV).

Children exposed to child abuse are often exposed to co-occurring domestic violence (DV) and environmental stressors. Households frequently experiencing IPV are commonly poor, undergo marital problems, life stressors, and other negative aspects of family life, including low parental education, unemployment, insufficient income, and substance abuse. Other factors associated with increased risk for child abuse include young child age, minority status, and parental stress, immigrant families, single-parent families, stepfamilies, families with three or more children, children 0 - 3 years old, female sex, and older adolescence. Perpetrator-related risk factors such as parental mental health, chronic illness, criminal history, alcohol or drug abuse, and parental skills have also been implicated with child abuse and IPV.

Knowledge of how the social determinants of child abuse operate and interact is an important first step towards developing interventions and policy-level change needed to improve the lives of affected children and families. To assess for associations, the following hypotheses were tested

Hypothesis I: The risk of experiencing child abuse will be higher for children exposed to domestic violence, even after controlling for potential confounders;

Hypothesis II: Mothers with tolerant attitudes towards wife beating will be more likely to abuse their child than those who do not tolerate wife beating;

Hypothesis III: Women exposed to generational IPV i.e. who had witnessed domestic violence in childhood, will be more likely to perpetrating child abuse, compared to those who were not so exposed; and

Hypothesis IV: Children in families of higher socio-economic position (SEP), as indicated by educational level of respondent or partner, and household wealth index, will be at lower risk of experiencing abuse compared to those of lower SEP.

The aim of this study was two-fold:

- i. to determine the prevalence of child abuse in Egypt; and
- ii. to investigate factors associated with maternal abuse as social determinants of child abuse.

DOMESTIC VIOLENCE

Domestic violence (also called intimate partner violence (IPV), domestic abuse or relationship abuse) is a pattern of behaviors used by one partner to maintain power and control over another partner in an intimate relationship

Domestic violence does not discriminate. Anyone of any race, age, sexual orientation, religion or gender can be a victim – or perpetrator – of domestic violence. It can happen to people who are married, living together or who are dating. It affects people of all socioeconomic backgrounds and education levels.

Domestic violence includes behaviors that physically harm, arouse fear, prevent a partner from doing what they wish or force them to behave in ways they do not want. It includes the use of physical and sexual violence, threats and intimidation, emotional abuse and economic deprivation. Many of these different forms of domestic violence/abuse can be occurring at any one time within the same intimate relationship.

Think of the wheel as a diagram of the tactics an abusive partner uses to keep their victim in the relationship. While the inside of the wheel is comprised of subtle, continual behaviors, the outer ring represents physical, visible violence. These are the abusive acts that are more overt and forceful, and often the intense acts that reinforce the regular use of other more subtle methods of abuse.



Although this Power & Control Wheel uses she/her pronouns for the victim and assumes a male perpetrator, abuse can happen to people of any gender in any type of relationship

IT'S NOT ALWAYS EASY TO TELL AT THE BEGINNING OF A RELATIONSHIP IF IT WILL BECOME ABUSIVE.

In fact, many abusive partners may seem absolutely perfect in the early stages of a relationship. Possessive and controlling behaviors don't always appear overnight, but rather emerge and intensify as the relationship grows.

Domestic violence doesn't look the same in every relationship because every relationship is different. But one thing most abusive relationships have in common is that the abusive partner does many different kinds of things to have more power and control over their partner.

Some of the signs of an abusive relationship include a partner who:

- Tells you that you can never do anything right
- Shows extreme jealousy of your friends and time spent away
- Keeps you or discourages you from seeing friends or family members
- Insults, demeans or shames you with put-downs
- Controls every penny spent in the household
- Takes your money or refuses to give you money for necessary expenses
- Looks at you or acts in ways that scare you
- Controls who you see, where you go, or what you do
- Prevents you from making your own decisions
- Tells you that you are a bad parent or threatens to harm or take away your children
- Prevents you from working or attending school
- Destroys your property or threatens to hurt or kill your pets
- Intimidates you with guns, knives or other weapons
- Pressures you to have sex when you don't want to or do things sexually you're not comfortable with
- Pressures you to use drugs or alcohol

Explore the tabs below to learn some of the common warning signs of each type of abuse. Experiencing even one or two of these behaviors in a relationship is a red flag that abuse may be present. Remember, each type of abuse is serious, and no one deserves to experience abuse of any kind, for any reason. If you have concerns about what's happening in your relationship, contact us. We're here to listen and support you!

PHYSICAL ABUSE

You may be experiencing physical abuse if your partner has done or repeatedly does any of the following tactics of abuse:

- Pulling your hair, punching, slapping, kicking, biting or choking you
- Forbidding you from eating or sleeping
- Hurting you with weapons
- Preventing you from calling the police or seeking medical attention
- Harming your children
- Abandoning you in unfamiliar place
- Driving recklessly or dangerously when you are in the car with them
- Forcing you to use drugs or alcohol (especially if you've had a substance abuse problem in the past)

Abuse Defined You are here:

- [Home /](#)

- Is This Abuse? /
- Abuse Defined

What Is Domestic Violence?

DOMESTIC VIOLENCE (ALSO CALLED INTIMATE PARTNER VIOLENCE (IPV), DOMESTIC ABUSE OR RELATIONSHIP ABUSE) IS A PATTERN OF BEHAVIORS USED BY ONE PARTNER TO MAINTAIN POWER AND CONTROL OVER ANOTHER PARTNER IN AN INTIMATE RELATIONSHIP.

Domestic violence does not discriminate. Anyone of any race, age, sexual orientation, religion or gender can be a victim – or perpetrator – of domestic violence. It can happen to people who are married, living together or who are dating. It affects people of all socioeconomic backgrounds and education levels.

Domestic violence includes behaviors that physically harm, arouse fear, prevent a partner from doing what they wish or force them to behave in ways they do not want. It includes the use of physical and sexual violence, threats and intimidation, emotional abuse and economic deprivation. Many of these different forms of domestic violence/abuse can be occurring at any one time within the same intimate relationship.



Here at The Hotline, we use the **Power & Control Wheel*** to describe most accurately what occurs in an abusive relationship.

Think of the wheel as a diagram of the tactics an abusive partner uses to keep their victim in the relationship. While the inside of the wheel is comprised of subtle, continual behaviors, the outer ring represents physical, visible violence. These are the abusive acts that are more overt and forceful, and often the intense acts that reinforce the regular use of other more subtle methods of abuse.

*Although this Power & Control Wheel uses she/her pronouns for the victim and assumes a male perpetrator, abuse can happen to people of any gender in any type of relationship. Click image to enlarge. Copyright by the Domestic Abuse Intervention Project 202 East Superior Street, Duluth, MN, 55802 218-722-2781

Warning Signs of Domestic Violence

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- Prevents you from making your own decisions
- Tells you that you are a bad parent or threatens to harm or take away your children
- Prevents you from working or attending school
- Destroys your property or threatens to hurt or kill your pets
- Intimidates you with guns, knives or other weapons
- Pressures you to have sex when you don't want to or do things sexually you're not comfortable with
- Pressures you to use drugs or alcohol

EMOTIONAL ABUSE

You may be in an emotionally/verbally abusive relationship if your partner exerts control

through:

- Calling you names, insulting you or continually criticizing you
- Refusing to trust you and acting jealous or possessive
- Trying to isolate you from family or friends
- Monitoring where you go, who you call and who you spend time with
- Demanding to know where you are every minute
- Trapping you in your home or preventing you from leaving Using weapons to threaten to hurt you
- Punishing you by withholding affection
- Threatening to hurt you, the children, your family or your pets
- Damaging your property when they're angry (throwing objects, punching walls, kicking doors, etc.)
- Humiliating you in any way
- Blaming you for the abuse
- Gaslighting
- Accusing you of cheating and being often jealous of your outside relationships
- Serially cheating on you and then blaming you for his other behavior
- Cheating on you intentionally to hurt you and then threatening to cheat again
- Cheating to prove that they are more desired, worthy, etc. than you are
- Attempting to control your appearance: what you wear, how much/little makeup you wear, etc.
- Telling you that you will never find anyone better, or that you are lucky to be with a person like them

SEXUALLY ABUSIVE METHODS OF RETAINING POWER AND CONTROL INCLUDE AN ABUSIVE PARTNER:

- Forcing you to dress in a sexual way Insulting you in sexual ways or calls you sexual name
- Forcing or manipulating you into to having sex or performing sexual acts
- Holding you down during sex
- Demanding sex when you're sick, tired or after hurting you
- Hurting you with weapons or objects during sex
- Involving other people in sexual activities with you against your will
- Ignoring your feelings regarding sex
- Forcing you to watch pornography
- Purposefully trying to pass on a sexually transmitted disease to you

SEXUAL COERCION

Sexual coercion lies on the 'continuum' of sexually aggressive behavior. It can vary from being egged on and persuaded, to being forced to have contact. It can be verbal and emotional, in the form of statements that make you feel pressure, guilt, or shame. You can also be made to feel forced through more subtle actions. For example, an abusive partner:

- Making you feel like you owe them — ex. Because you're in a relationship, because you've had sex before, because they spent money on you or bought you a gift
- Giving you drugs and alcohol to "loosen up" your inhibitions Playing on the fact that you're in a relationship, saying things such as: "Sex is the way to prove your love for me," "If I don't get sex from you I'll get it somewhere else
- Reacting negatively with sadness, anger or resentment if you say no or don't immediately agree to something

- Continuing to pressure you after you say no
- Making you feel threatened or afraid of what might happen if you say no
- Trying to normalize their sexual expectations: ex. “I need it, I’m a man”

Even if your partner isn’t forcing you to do sexual acts against your will, being made to feel obligated is coercion in itself. Dating someone, being in a relationship, or being married never means that you owe your partner intimacy of any kind.

REPRODUCTIVE COERCION IS A FORM OF POWER AND CONTROL WHERE ONE PARTNER STRIPS THE OTHER OF THE ABILITY TO CONTROL THEIR OWN REPRODUCTIVE SYSTEM. IT IS SOMETIMES DIFFICULT TO IDENTIFY THIS COERCION BECAUSE OTHER FORMS OF ABUSE ARE OFTEN OCCURRING SIMULTANEOUSLY.

Reproductive coercion can be exerted in many ways:

- Refusing to use a condom or other type of birth control
- Breaking or removing a condom during intercourse
- Lying about their methods of birth control (ex. lying about having a vasectomy, lying about being on the pill)
- Refusing to “pull out” if that is the agreed upon method of birth control
- Forcing you to not use any birth control (ex. the pill, condom, shot, ring, etc.)
- Removing birth control methods (ex. rings, IUDs, contraceptive patches)
- Sabotaging birth control methods (ex. poking holes in condoms, tampering with pills or flushing them down the toilet)
- Withholding finances needed to purchase birth control
- Monitoring your menstrual cycles
- Forcing pregnancy and not supporting your decision about when or if you want to have a child
- Forcing you to get an abortion, or preventing you from getting one
- Threatening you or acting violent if you don’t comply with their wishes to either end or continue a pregnancy
- Continually keeping you pregnant (getting you pregnant again shortly after you give birth)

Reproductive coercion can also come in the form of pressure, guilt and shame from an abusive partner. Some examples are if your abusive partner is constantly talking about having children or making you feel guilty for not having or wanting children with them especially if you already have kids with someone else.

ECONOMIC OR FINANCIAL ABUSE IS WHEN AN ABUSIVE PARTNER EXTENDS THEIR POWER AND CONTROL INTO THE AREA OF FINANCES. THIS ABUSE CAN TAKE DIFFERENT FORMS, INCLUDING AN ABUSIVE PARTNER:

Giving an allowance and closely watching how you spend it or demanding receipts for purchase

- Placing your paycheck in their bank account and denying you access to it
- Preventing you from viewing or having access to bank accounts
- Forbidding you to work or limiting the hours that you can work
- Maxing out credit cards in your name without permission or not paying the bills on credit cards, which could ruin your credit score
- Stealing money from you or your family and friends
- Using funds from children’s savings accounts without your permission
- Living in your home but refusing to work or contribute to the household

- Making you give them your tax returns or confiscating joint tax returns
- Refusing to give you money to pay for necessities/shared expenses like food, clothing, transportation, or medical care and medicine

DIGITAL ABUSE IS THE USE OF TECHNOLOGIES SUCH AS TEXTING AND SOCIAL NETWORKING TO BULLY, HARASS, STALK OR INTIMIDATE A PARTNER. OFTEN THIS BEHAVIOR IS A FORM OF VERBAL OR EMOTIONAL ABUSE PERPETRATED ONLINE. YOU MAY BE EXPERIENCING DIGITAL ABUSE IF YOUR PARTNER:

Tells you who you can or can't be friends with on Facebook and other sites

- Sends you negative, insulting or even threatening emails, Facebook messages, tweets, DMs or other messages online.
- Uses sites like Facebook, Twitter, foursquare and others to keep constant tabs on you.
- Puts you down in their status updates.
- Sends you unwanted, explicit pictures and demands you send some in return.
- Pressures you to send explicit videos.
- Steals or insists on being given your passwords.
- Constantly texts you and makes you feel like you can't be separated from your phone for fear that you will be punished.
- Looks through your phone frequently, checks up on your pictures, texts and outgoing calls.
- Tags you unkindly in pictures on Instagram, Tumblr, etc.
- Uses any kind of technology (such as spyware or GPS in a car or on a phone) to monitor you. You never deserve to be mistreated, online or off. Remember:
- Your partner should respect your relationship boundaries.
- It is ok to turn off your phone. You have the right to be alone and spend time with friends and family without your partner getting angry. You do not have to text any pictures or statements that you are uncomfortable sending, especially nude or partially nude photos, known as "sexting."
- You lose control of any electronic message once your partner receives it. They may forward it, so don't send anything you fear could be seen by others.
- You do not have to share your passwords with anyone.
- Know your privacy settings. Social networks such as Facebook allow the user to control how their information is shared and who has access to it. These are often customizable and are found in the privacy section of the site. Remember, registering for some applications (apps) require you to change your privacy settings.
- Be mindful when using check-ins like Facebook Places and foursquare. Letting an abusive partner know where you are could be dangerous. Also, always ask your friends if it's ok for you to check them in. You never know if they are trying to keep their location secret.
- You have the right to feel comfortable and safe in your relationship, even online.

WHAT IS PEACE PSYCHOLOGY: VIOLENCE, NON-VIOLENCE, CONFLICT RESOLUTION AT MACRO LEVEL, ROLE OF MEDIA IN CONFLICT RESOLUTION?

Peace psychology

Peace psychology, area of specialization in the study of psychology that seeks to develop theory and practices that prevent violence and conflict and mitigate the effects they have on society. It also seeks to study and develop viable methods of promoting peace.

The roots of peace psychology are often traced to William James and a speech he gave at Stanford University in 1906. With World War I on the horizon, James talked about his belief that

war satisfies a deeply felt human need for virtues such as loyalty, discipline, conformity, group cohesiveness, and duty. He also observed that individuals who belong to a group, whether military or otherwise, experience a boost in self-pride when they are proud of their group. Most important, he argued that war is not likely to be eliminated until humans have created a "moral equivalent of war," such as public service that allows people to experience the virtues that were associated with war making.

Many other psychologists and philosophers wrote about the psychology of peace. A partial list includes Alfred Adler, Gordon Allport, Jeremy Bentham, James McKeen Cattell, Mary Whiton Calkins, Sigmund Freud, William McDougall, Charles Osgood, Ivan Pavlov, and Edward Tolman. Even Pythagoras would qualify, because of his writings on nonviolence and appreciation for the more-insidious form of violence called structural violence, which kills people slowly by depriving them of basic need satisfaction (e.g., poverty).

A recurrent theme among peace psychologists has been that war is built, not born, and the related idea that war is biologically possible but not inevitable. Those ideas are captured in a number of manifestos issued by psychologists. One statement was signed by almost 4,000 psychologists after World War II. Another, the Seville Statement, was issued in 1986 by 20 highly respected scientists during the United Nations International Year of Peace. Because war is built or constructed, a great deal of research in peace psychology has sought to identify environmental conditions that are linked to violence and peaceful behaviour.

Peace psychology was given a significant boost during the Cold War (c. mid-1940s through the early 1990s), when the conflict between the United States and Soviet Union heated up and the threat of nuclear annihilation seemed imminent, leading psychologists to create concepts to better understand intergroup conflict and its resolution. Also important was the establishment of the 48th division of the American Psychological Association, called Peace Psychology, in 1990. Shortly thereafter, a journal was established, *Peace and Conflict: Journal of Peace Psychology*. Since then, doctoral-level training programs in peace psychology have been established around the world. Peace psychology is now global in scope. It recognizes that violence can be cultural, which occurs when beliefs are used to justify either direct or structural violence. Direct violence injures or kills people quickly and dramatically, whereas structural violence is much more widespread and kills far more people by depriving them of satisfaction of their basic needs. For example, when people starve even though there's enough food for everyone, the distribution system is creating structural violence. If a person justifies the deaths of starving people by blaming them for their situation (called blaming the victim), that person is engaging in cultural violence. Direct violence is supported by the culturally violent notion of just war theory, which argues that under certain conditions, it is acceptable to kill others (e.g., defense of the homeland, using war as a last resort). One of the main challenges for peace psychology is to deepen understanding of the structural and cultural roots of violence, a problem that is particularly important when security concerns revolve around the prevention of terrorism.

PSYCHOLOGY'S ROLE IN WORLD WAR I AND II

The concerns of peace psychologists are deeply rooted in the field of psychology, not only because the promotion of human well-being is central to the mission of psychology (APA Bylaws) but also because psychologists have long been concerned about war and peace. William James, a founder of psychology in the United States, has been regarded as the first peace psychologist (Deutsch, 1995). Just prior to World War I, James gave an address on "the moral equivalent of war"

in which he highlighted the enthusiastic readiness of humans to rally around the military flag (James, 1995), a social psychological phenomena akin to “nationalism” that has played out repeatedly for generations, especially when relations between nations become hostile. James argued that militaristic urges are deeply rooted in humans and that societies must learn to channel the satisfaction of their needs in productive directions. Psychologists did not follow James’ advice, but they did become involved in U.S. military affairs during the First World War.

Among the more important contributions of psychologists to the war effort was the development of group intelligence tests that were used to select and classify new recruits, a development that “put psychology on the map” (Smith, 1986, p.24). Psychologists had even greater involvement during the Second World War. A number of specialties in psychology emerged and supported the war effort. Clinical psychologists developed and administered tests to place personnel within the military establishment and they also treated war-related emotional problems. Social psychologists contributed their expertise, developing propaganda designed to promote the war effort by boosting morale at home and demoralizing the enemy abroad.

A number of psychologists worked with the Office of Strategic Services, the precursor of the Central Intelligence Agency, selecting and training people involved in “undercover” activities in Europe and the Far East. Human factors psychologists participated in the design of weaponry and other instruments used by the military, and experimental psychologists trained nonhumans to perform human tasks.

The best-known example of the latter was B. F. Skinner’s research in which he trained pigeons to guide pilotless missiles to targets, a program that was ultimately discarded (Herman, 1995). In all these activities, psychologists were enthusiastic participants in the effort to win World War II, a war that was regarded by most people as a just war.

PSYCHOLOGY’S ROLE IN THE COLD WAR

The ideology of Realpolitik has guided the conduct of foreign policy worldwide for nearly three centuries (Klare & Chandrani, 1998). Realpolitik is the belief that politics is reducible to three basic goals: keeping power, increasing power, and demonstrating power (Morganthau, 1972). The international politics of the United States was, and continues to be, primarily guided by the ideology of Realpolitik. From a Realpolitik perspective, one sees security in the international system as the balanced capacity among states to use coercive power. Furthermore, because it is assumed that all sovereign states seek to maximize their power, and they operate within an international structure that is anarchical, the best way to ensure security is to be militarily strong and to adopt a policy of deterrence. According to the logic of deterrence, each state can best ensure its security by threatening any would-be aggressor with a retaliatory blow that would be unbearably costly to the aggressor. By the conclusion of World War II, a tidy bipolar superpower arrangement had emerged in the world. The United States and Soviet Union were locked into an adversarial relationship in which they competed and concentrated their resources in an arms race, a Cold War that resulted in enormous stockpiles of conventional and nuclear weapons. During the early years of the Cold War, psychologists continued to support the policies of the U.S. government.

Tensions between the United States and Soviet Union grew, as did the arsenals of nuclear weapons that were aimed at each other. There were scattered attempts by committees of the American Psychological Association (APA) and the Society for the Psychological Study of Social Issues (SPSSI) to analyze the implications of the new atomic warfare capability on future international

relations, as well as the potential psychological effects on populations experiencing atomic bombardment. Generally, these early committees lacked focus but agreed that the major psychological concern was citizens' attitudes toward atomic warfare and energy. They "emphasized the need to accurately assess and control public opinion in order to achieve public consensus regarding foreign relations and atomic war" (Morawski & Goldstein, 1985, p. 278).

THE POST-COLD WAR ERA: PEACE PSYCHOLOGY COMES OF AGE

THE COLD

War was a power struggle of global proportions that made certain categories of violence salient. Using the state as the focal unit of analysis, scholars concentrated their attention on interstate wars, wars of liberation, secessionist movements, civil wars, and wars in which the superpowers directly intervened militarily (i.e., interventionist wars). Although many other forms of violence were prevalent, from a state-centered perspective, what mattered most were those struggles that had a direct bearing on the strategic, U.S.–Soviet balance of power (George, 1983). Since the end of the Cold War in the late 1980s, the planet's bipolar superpower structure has reconfigured dramatically and entirely new categories of security concerns have emerged.

To be sure, the sovereign states of the international system will still have conflicts to manage, but increasingly, patterns of violence are not neatly following the contours of our inherited system of sovereign states. In the post–Cold War era, a complex pattern of interlacing schisms is emerging, which divides people not so much by state boundaries but by ethnicity, religion, economic well being, population density, and environmental sustainability (Klare, 1998).

A small sample of what we are now observing globally is the outbreak of ethnic violence and other forms of identity group conflict and violence, a growing number of economic and political refugees, ecological devastation and pockets of food insecurity, concentrations of drug-related violence, and international terrorism. These problems are within and across international boundaries and underscore the need to reorient peace psychology and enlarge its scope of practice. The current volume was conceived within the context of these new challenges and represents an attempt to reinvigorate the search for psychological analyses that can inform theory and practice in peace psychology for the twenty-first century.

ORGANIZATION OF THE BOOK: THE FOUR-WAY MODEL

Section I: Direct Violence The current volume retains the traditional focus of peace psychology on international relations by applying psychological concepts and theory to problems of interstate violence and the threat of nuclear war. In addition, because direct violence does not neatly follow the contours of the sovereign state system, chapters in Section I reflect a wider radius of violent episodes that vary in scale from two-person intimate relations to the large-scale violence of genocide. While different in scale and complexity, these varied forms of violence share several features: They all engender direct, acute insults to the psychological or physical well-being of individuals or groups, and they erupt periodically as events or episodes. The analytic tools of peace psychologists are central to understanding many forms of direct violence. For instance, in Section I, many of the contributors from around the world underscore the importance of social identity processes, which are manifest when individuals begin to identify with particular groups and favor their ingroups over outgroups. Quite naturally, the basic need to have a sense of who we are is inextricably woven into the fabric of our identity groups. Conflict and violence often erupts when two or more groups of individuals have different identities and see each other as threats to

their identity group's continued existence.

These identity-based conflicts are central to many forms of violence including hate crimes, gang violence, ethnic conflicts, and even genocide. Sovereign states have been woefully inadequate in dealing with identity-based problems. Also reflected throughout the text is peace psychologists' growing appreciation for the structural roots of violent episodes. For example, patriarchal structures in which males dominate females play a role in intimate violence. Similarly, cultural narratives that denigrate gays, lesbians, and other marginalized identity groups are predisposing conditions for direct violence. Section II looks closer at some forms of violence that are deeply rooted in the structures of a society, what we are calling "structural violence." Section II: Structural Violence Today, an increasing number of peace psychologists are concerned about structural violence (Galtung, 1969), an insidious form of violence that is built into the fabric of political and economic structures of a society (Christie, 1997; Pilisuk, 1998; Schwebel, 1997).

Structural violence is a problem in and of itself, killing people just as surely as direct violence. But structural violence kills people slowly by depriving them of satisfying their basic needs. Life spans are curtailed when people are socially dominated, politically oppressed, or economically exploited.

Structural violence is a global problem in scope, reflected in vast disparities in wealth and health, both within and between societies. Section II examines a number of forms of structural violence, all of which engender structure-based inequalities in the production, allocation, and utilization of material and non-material resources. Galtung (1969) proposed that one way to define structural violence was to calculate the number of avoidable deaths. For instance, if people die from exposure to inclement conditions when shelter is available for them somewhere in the world, then structural violence is taking place. Similarly, structural violence occurs when death is caused by scarcities in food, inadequate nutrition, lack of health care, and other forms of deprivation that could be redressed if distribution systems were more equitably structured. The chapters in Section II make it clear that structural violence is endemic to economic systems that produce a concentration of wealth for some while exploiting others, political systems that give access to some and oppress others, and hierarchical social systems that are suffused with ethnocentrism and intolerance.

CONFLICT RESOLUTION AND MANAGEMENT: THE MACRO PERSPECTIVE

Conflicts arise from the pursuit of divergent interests, goals and aspirations by individuals or groups in a defined social and physical environment. According to

[1] changes in the social environment such as contestable access to new political positions or perceptions of new resources arising from development in the physical environment are fertile grounds for conflicts involving individuals and groups, who are interested in using the new resources to achieve their goals. The past ten to fifteen years were characterized by the occurrence of some of the most violent conflicts among several ethnic and religious communities in different regions and states of Nigeria. As in

[2] hardly was any region spared some of these conflicts, even though the conflicts differed either in prevalence and intensity, or their protracted or nonprotracted nature. By definition, it implies that conflict is natural to human nature. That is, all humans or groups of humans have goals and interests which may be different with the goals and interests of other groups.

This makes conflict inevitable. Change is a natural phenomenon that produces the major social

forces that shape societies. When these changes occur, especially at the middle and micro levels where their effects are individually or personally experienced, they do not happen quickly but are gradual in altering the ecological order, the system of stratification and the social institutions of an entire society causing societies to undergo industrial, political and urban revolution leaving in its wake social problems such as political and economic exclusion of some groups, injustice, poverty, exploitation, diseases, inequality etc.

These conditions place some people or group at an advantage over others and the inability of the social structures in place to bridge this gap and where possible reduce the disparity can cause frustrations and acts of aggression from the disadvantaged individuals or groups.

Where these shows of frustration and aggression are ignored and not nipped at the bud, they most often are excuses to violently play out the hostility towards the exploitative group or groups and may escalate to become larger than the small groups or individuals involved to include an entire ethnic groups or organizations.

OVERVIEW OF CONFLICT

Conflict is an inevitable phenomenon in this universe. As long as humankind exists, there must be conflict. Conflict has been variously defined by different authors but it is technically seen as an opposition among social entities directed against each other [3]. Similarly, [4] sees conflict as a political process that generates from diversity of choices and distribution of scarce resources in the society. [5] further adds that the occurrence of cheat and aggressive behavior on the part of individuals or groups that lead to the frustration of others may cause conflict. Also [6] states that conflict is the struggle over values or claims to states, power and scarce resources which the aims of the group or individuals involved are not only to obtain the desired values but are to neutralize, injure or eliminate rivals. Thus, conflict is present when two or more parties perceive that their interests are incompatible, express hostile attitudes, or take, pursue their interests through actions that damage the other parties. These parties may be individuals, small or large groups, and countries. From the foregoing, it can be deduced that opposition is the order of contrast to cooperation. Meaning that wherever and whenever cooperation and understanding is lacking opposition sets in.

Therefore, conflict can be explained to be an adversarial relationship involving at least two individuals or collective actors over a range or series of issues such as resources control, power, status, values, goals interest etc. Conflict is a social situation in which at least two parties are involved who strive for goals, making it goal oriented or directed activity designed to improve the position of one party at the expense of the other.

It is a perceived state of incompatibility between two or more people or groups and among values where the achievement of one value can be realized only at the expense of the other values. Conflict is an escalated competition between two or more parties each of which aims to gain advantage of some kind and at least one of the parties believes that the conflict is over a set of mutually incompatible goals. Conflicts may or may not be expressed in behaviours. It is one of the energies of life and thus common, natural and unavoidable but its pattern of expression can make or mar any relationship.

3. CONCEPT OF MACRO

Conflict When individuals or groups who had previously been latent over their grievances,

oppressions, deprivation, injustices etc suddenly or gradually begin to express these feelings through certain obnoxious behaviours in order to call for attention to their situation which escalates to an entire group, ethnic, state or even national and international, macro conflict has occurred. Macro level conflicts are expression of existing adversary's relationships through aggressive behaviours as a result of unresolved incompatible interest in the social structure of the system or organization. These lapses in the structural functionalism of a society make it difficult for the rules and status that exists to provide social control or social order which is necessary for survival.

Macro conflicts are open or external expression of dissatisfaction of the aggrieved group which is aimed at injuring the other party or reducing it if not totally eliminating the existing relationship between both groups. Conflict that has degenerated to macro level becomes difficult and complex for the parties involved to personally resolve their differences alone without the aid of external assistance. Most times the aggrieved parties may not even be able to state the immediate or direct cause of conflict as they usually lose track of the original causes of grievance.

Again, conflicts can escalate to its macro level as a result of the presence of indirect or secondary parties to the conflict. These groups of persons or organizations complicate conflict situations and are difficult to identify because their involvements are by proxy through provisions of war aid and weapons, financial support etc.

They are known as "shadow" parties in conflict. Macro conflicts focus on the broader impacts or effects of conflict or its lack thereof. It considers a wider aspect in conflict such as an entire society, age group or age bracket, population groups, countries, economies, social class etc. Macro conflict goes beyond an individual or organization and conflict at the macro level changes social stratification, economic power and diplomatic stance of a society and thereby its future.

Causes of Macro Conflict Resources

Conflicts can emerge due to resources. These conflicts arise when two or more groups aspire for the same scarce resources and where the aspiring parties demanding for these resources are more than the available scarce resources. The desire for control of the available scarce resources by a privileged group to the disadvantage of the other aspirants can cause conflicts e.g. the Niger Delta Region crises in Nigeria. Values: Conflicts may arise due to differences in the value of the people or organization. Values here include philosophy, ideologies, religions etc.

The value a group of people or ethnic nationality places on another group may be a constant cause for conflict especially where these values or perceptions are discriminatory and undermines the other group thereby limiting the prospects in certain areas of their lives or hindering their access to certain self actualizing opportunities. Values can bring about oppressive and unequal social structures.

e.g Fulani Cattle Herdsmen and some indigent communities in Northern Nigeria, the Igbo cast system.

MACRO CONFLICT RESOLUTION AND MANAGEMENT

Conflict at the macro level has most often gone beyond the control of the conflicting parties, so even when they see the need for peace, may require the presence and assistance of a third party to

initiate the peace move. The third party usually provides neutral ground that are safe enough for peace talk and unbiased opinions for conflicting parties to consider and upon which their decision can be based. Also, warring or conflicting groups may want to enter into peace talks through representative bodies who are expected to, if possible find lasting solution to the existing strives. Conflict resolution is seen by [10] as a variety of approaches aimed at terminating conflict through the constructive solving of problem while conflict management is defined as the process of reducing the negative and destructive capacity of conflict through a number of measures and by working with and through the parties involved in the conflict. For the purpose of this paper, conflict resolution and management is defined as constructive processes or procedures adopted for solving problems which are aimed at terminating conflicts or reducing its negative and destructive effects by working with and through the conflicting parties.

This means that some conflicts can be permanently resolved when the basic needs of the parties have been met with all necessary satisfiers and their fears allayed and there are non-resolvable conflicts and these can be transformed, regulated or managed e.g. values. Management of conflicts covers the entire handling of conflict positively through its different stages, including efforts made towards prevention by being proactive, conflict limitation, containment and litigation. According to [7], conflict management promotes conditions in which collaborative and values relationships control the behaviour of conflicting parties

CONCLUSION

Conflicts are natural phenomenon in human society. Depending on their intensity, conflicts are expressed sometimes in violent or non-violent ways. They are social situations in which at least two parties with incompatible goals strive to achieve these goals at the expense of each other. Conflicts occur at all levels of human interaction. Macro conflicts focus on the broader impacts of conflict on entire groups or social strata.

The causes of conflict are varied and includes resources, values, oppressive social order, mismanagement of information etc. and these could be permanently resolved but where this is impossible will be managed through collaboration, alternative dispute resolution (ADR), negotiation, conciliation, mediation, arbitration, adjudication, crisis management and multi-track approach methods. Conflict is an inevitable occurrence in every human existence, at all levels and takes different forms which could be either violent or non-violent ways.

THE ROLE OF THE MEDIA IN PEACE BUILDING, CONFLICT MANAGEMENT, AND PREVENTION

Information is power and insight can impact on public discourse. This way, perceptions can be changed by access to media. Different types of media are utilised globally to distribute knowledge and idealistically, free mass media is a tool of and signpost for democracy. Freedom of expression is not only the core of a healthy media but also a fundamental human right and vital for a democratic structure. It stands for freedom of speech, the right to information and the representation of different opinions in a heterogeneous society. In any culture of prevention, effective and democratic media are an essential part and indispensable for societies trying to make a transition towards peace and democracy. Harry S. Truman once said "You can never get all the facts from just one newspaper, and unless you have all the facts, you cannot make proper judgements about what is going on this statement reflects the need for free access to unbiased information. Not giving people the possibility of political participation and not allowing them to express themselves freely is a significant cause of conflict. On the one hand free, independent and

pluralistic media provide a platform for debate and different opinions. On the other hand, media can be misused for propaganda purposes, to incite hatred and spread rumours and therefore artificially create tensions.

The transmission of ideas is also not limited to conventional media such as newspapers, TV or radio.

Lack of information can, at any stage of a conflict, make people desperate, restless and easy to manipulate. The ability to make informed decisions strengthens societies and fosters economic growth, democratic structures and the positive outlook on the future. For this very reason, the United Nations Millennium Declaration stressed the need "to ensure the freedom of the media to perform their essential role and the right of the public to have access to information.

Journalism does not need justification for its existence. Its service to society is justification in itself. Journalism can not only help to distribute information but also counter hate-speech and create an environment of balanced opinions, an information equilibrium]. For the media it can be problematic to find a balance between preventing harm caused by speech and protecting individual expression. Being able to find this balance, however is important especially in conflict situations. Responsible journalism does not just re-publish press releases but is truly concerned with a truthful, balanced and fair account of events. In order to achieve this journalists have to stay clear of judgemental representations and describe reality without embellishment]. If democracy is to work properly, society needs access to news and information; analysis of the status quo, debate, practical information and exchange as well as entertainment are needed and provided by the media. The definition of conflict and defining conflict areas is not easy and no two places are alike. Journalists need to know what they can expect on sight in order to define the objectives of their project.

In case of a crisis or a conflict, the international media can attract worldwide attention. The mass media is a pervasive part of daily life especially in industrialised countries and thus able to shine a light on conflicts anywhere in the world. Since most armed conflicts these days have governmental and not territorial reasons; the parties are often concerned with making sure that the majority of people are on "their" side, which bears a lot of potential for misrepresenting facts and trying to seize control over the distribution of information. For this very reason the intervention of unbiased and free global media is important not only for the world public but also for the people directly affected. The number of conflicts, however, that gets international attention is small; therefore local media is vital in this context.

Broadcasting news by using community radios can help reach people in different areas, even with different languages more easily. This way people can be addressed directly and their own personal experiences and lives can be incorporated much better, than with foreign media. The danger of manipulation and inflammation of ethnic tensions, however, cannot be ignored. Another advantage of local media, especially radio is that in border areas it is possible to convey peace messages to passing fighters and refugees alike]. Democratic media structures need more than this; it is vital that the use of information within a society is not solemnly passive but that the population gets actively involved in creating content and broadcasting it[

WHAT IS WELLBEING AND SELF-GROWTH: TYPES OF WELLBEING [HEDONIC AND EUDEMONIC], CHARACTER STRENGTHS, RESILIENCE AND POST-TRAUMATIC GROWTH?

WELLBEING

Well-being is the experience of health, happiness, and prosperity. It includes having good mental health, high life satisfaction, a sense of meaning or purpose, and ability to manage stress. More generally, well-being is just feeling well (Take this quiz to discover your level of well-being.) Well-being is something sought by just about everyone, because it includes so many positive things — feeling happy, healthy, socially connected, and purposeful. Unfortunately, well-being appears to be in decline, at least in the U.S. And increasing your well-being can be tough without knowing what to do and how to do it.

These are some of the reasons why I founded The Berkeley Well-Being Institute — an organization that translates the science of well-being into simple tools and products that help you build your well-being. And they are the reasons why I wrote *Outsmart Your Smartphone: Conscious Tech Habits for Finding Happiness, Balance, and Connection IRL*, which helps people tackle new challenges that interfere with our well-being in the technology age.

Can You Actually Improve Your Well-Being

Increasing your well-being is simple; there are tons of skills you can build. But increasing your well-being is not always easy: Figuring out what parts of well-being are most important for you and figuring out how, exactly, to build well-being skills usually require some extra help.

How Long Does It Take to Improve Well-Being?

Usually when people start consistently using science-based techniques for enhancing well-being, they begin to feel better pretty quickly. In the studies I've conducted and read, most people show significant improvements within five weeks.

But you have to stick to it. If you are feeling better after five weeks, you can't just stop there. Why? Well, you probably already know that if you stop eating healthy and go back to eating junk food, then you'll end up back where you started. It turns out that the exact same thing is true for different types of well-being. If you want to maintain the benefits you gain, you'll have to continue to engage in well-being-boosting practices to maintain your skills. So it's really helpful to have strategies and tools that help you stick to your well-being goals — for example, a happiness and well-being plan or a well-being boosting activity that you can continue to use throughout your life.

Here's what you need to know:

Where Does Well-Being Come From?

Well-being emerges from your thoughts, actions, and experiences most of which you have control over. For example, when we think positive, we tend to have greater emotional well-being. When we pursue meaningful relationships, we tend to have better social well-being. And when we lose our job — or just hate it — we tend to have lower workplace well-being. These examples start to reveal how broad well-being is, and how many different types of well-being there are.

Because well-being is such a broad experience, let's break it down into its different types.

5 MAJOR TYPES OF WELL-BEING

- Emotional Well-Being. The ability to practice stress-management techniques, be resilient, and

generate the emotions that lead to good feelings.

- Physical Well-Being. The ability to improve the functioning of your body through healthy eating and good exercise habits.
- Social Well-Being. The ability to communicate, develop meaningful relationships with others, and maintain a support network that helps you overcome loneliness.
- Workplace Well-Being. The ability to pursue your interests, values, and purpose in order to gain meaning, happiness, and enrichment professionally.
- Societal Well-Being. The ability to actively participate in a thriving community, culture, and environment.

To build your overall well-being, you have to make sure all of these types are functioning to an extent.

Think of it like this: Imagine you are in a car. Your engine works great, and maybe your transmission works pretty well, too, but your brakes don't work. Because your brakes don't work, it doesn't really matter how well your engine works; you're still going to have trouble going about your life.

The same is true for your well-being. If everything else in your life is going great, but you feel lonely, or you're eating unhealthfully, other areas of your life will be affected, and you likely won't feel as well as you want to.

Because each part of well-being is important to your overall sense of well-being, let's talk about how to build each type of well-being:

Emotional Well-Being. To develop emotional well-being, we need to build emotional skills — skills like positive thinking, emotion regulation, and mindfulness, for example. Often, we need to build a variety of these skills to cope with the wide variety of situations we encounter in our lives. When we have built these emotional well-being skills, we can better cope with stress, handle our emotions in the face of challenges, and quickly recover from disappointments. As a result, we can enjoy our lives a bit more, be happier and pursue our goals a bit more effectively.

Here are some of the skills that research suggests contribute to emotional well-being:

- Happiness Skills
- Mindfulness Skills
- Positive Thinking Skills
- Resilience Skills

Physical Well-Being. To develop our physical well-being, we need to know what a healthy [diet](#) and exercise routine looks like, so that we can implement effective strategies in our daily lives. When we improve our physical well-being, not only do we feel better, our newfound health can also help prevent many diseases, heal our guts, boost our emotional well-being, and limit the number of health challenges we have to deal with in our lives.

Here are some of the things that can help you boost your physical well-being:

- Eating for Health
- Detoxing Your Body
- Correcting Nutritional Deficiencies
- Removing Plastic From Your Home

Unfortunately, it's possible to eat healthy but still be unhealthy. We can accidentally miss important foods or nutrients. Or we can overburden ourselves with toxins from plastic or processed food. As a result, we may need to eat additional foods, detox our bodies, or prevent these toxins from entering our bodies again. This is why it's essential to learn about health, so that we can make the right changes – those that lead to long-term health and well-being.

Social Well-Being. To develop social well-being, we need to build our social skills, like gratitude, kindness, and communication. Social skills make it easier for us to have positive interactions with others, helping us to feel less lonely, angry, or disconnected. When we have developed our social well-being, we feel more meaningfully connected to others.

Here are some of the skills that research suggests contribute to better social well-being:

- Practicing Gratitude
- Building Meaningful Social Connections
- Managing Your Relationship with Technology

It's important to know that building social well-being is one of the best ways to build emotional well-being. When we feel socially connected, we also tend to just feel better, have more positive emotions, and we are able to cope better with challenges. This is why it's essential to build our social well-being.

Workplace Well-Being. To develop our workplace well-being, we need to build skills that help us pursue what really matters to us. This can include building professional skills which help us to advance more effectively, but it also includes things like living our values and maintaining work-life balance. These skills let us enjoy our work more, helping us to stay focused, motivated, and successful at work. When we have developed workplace well-being, our work, and therefore each day, feels more fulfilling.

Here are some of the key skills you need for workplace well-being:

- Maintaining Work-Life Balance
- Finding Your Purpose

Because we spend so much time at work, building our workplace well-being has a big impact on our overall well-being.

Societal Well-Being. To develop societal well-being, we need to build skills that make us feel interconnected with all things. We need to know how to support our environment, build stronger local communities, and foster a culture of compassion, fairness, and kindness. These skills help us feel like we're part of a thriving community that really supports one another and the world at large. When we cultivate societal well-being, we feel like we are a part of something bigger than just ourselves and live happily.

Although each of us only makes up a tiny fraction of a society, it takes all of us to create societal well-being. If each of us did one kind act for someone else in our community, then we would live in a very kind community. Or if all of us decide we are going to recycle, then suddenly we create a world with significantly less waste. In order to live in a healthy society, we too need to contribute to making a healthy society.

Here are some of the skills you can build for greater societal well-being:

- Living Your Values
- Creating a Plastic-Free Home
- Making Positive Impacts in Other People's Lives
- Kindness

Who Benefits Most from Building Well-Being?

Not everyone experiences the same benefits from building their well-being. For example, lots of research suggests that the more motivated you are to build well-being skills, the greater the impact. Perhaps this is not surprising.

Still other research shows that having skills like a growth mindset or a positive attitude can actually help you build your other well-being skills more easily. This is why I tend to encourage people to build these skills first – afterward, you may be able to increase the other types of well-being more easily. In addition, building well-being skills is perhaps most beneficial for people struggling the most, particularly if they've recently undergone something stressful. It may be harder to build well-being during this time, but the impact may be greater, because there is more room for improvement.

There Is No Magic About Building Well-Being

Keep in mind, it takes time and effort to build any new skill set – that includes well-being skills. It's important to be realistic with yourself about what you can reasonably accomplish in a given amount of time. Having unrealistic expectations can lead you to give up before you've reached your well-being goals. So it's key to create a realistic plan for your well-being, stick to it, and take small actions every day that add up to big improvements up over time.

If you've read my earlier posts, you might know that I too have struggled with aspects of my well-being, particularly with maintaining work-life balance. The truth is, we all struggle, and new struggles can and will pop up, even if you're doing well. But the longer we've worked on strengthening our well-being skills, the easier it is to be resilient, take the actions needed to bounce back, and continue moving forward.

Growing your well-being is a lifelong pursuit, but it is totally worth it.

HEDONIC AND EUDAIMONIC WELL-BEING

Hedonic versus Eudaimonic Conceptions of Well-being: Evidence of Differential Associations with Self-reported Well-being Conceptions of well-being are individuals' cognitive representations of the nature and experience of well-being. Numerous professional thinkers from a broad range of disciplines have theorized about the nature of well-being and "the good life", providing explicit conceptualizations of the experience of well-being. Contemporary psychological research has also begun to examine how laypersons conceptualize and think about the nature of well-being (e.g., King and Napa 1998; McMahan and Estes 2010; Ng et al. 2003), often focusing on the degree to which individuals define well-being in hedonic (e.g., the experience of pleasure) and eudaimonic (e.g., the experience of meaning) terms.

As a fundamental representation of wellness, these conceptions likely exert a pervasive influence on behavior and psychological functioning. In two studies, the above research is extended by investigating the relative effects of both hedonic and eudaimonic dimensions of individual conceptions of well-being on several aspects of experienced well-being.

Formal and Lay Conceptions of Well-being Well-being refers to optimal functioning and experience (Ryan and Deci 2001). The precise nature of optimal functioning is not necessarily clear, however, and many philosophers and psychologists provide differing conceptions of well-being. Although numerous and sometimes complex, these conceptions tend to revolve around two distinct, but related philosophies:

- (1) hedonism and
- (2) eudaimonism.

A hedonic view of well-being equates well-being with pleasure and happiness (Kahneman et al. 1999; Ryan and Deci 2001). Alternatively, a eudaimonic view of well-being conceptualizes well-being in terms of the cultivation of personal strengths and contribution to the greater good (Aristotle, trans. 2000), acting in accordance with one's inner nature and deeply held values (Waterman 1993), the realization of one's true potential (Ryff and Keyes 1995), and the experience of purpose or meaning in life (Ryff 1989). Hedonic and eudaimonic approaches to well-being can be further distinguished by the degree to which they rely on subjective versus objective criteria for determining wellness.

To illustrate, determinations of wellness from the hedonic approach center around the experience of pleasure, a subjectively-determined positive affective state. From a eudaimonic perspective, well-being is achieved by meeting objectively-valid needs which are suggested to be rooted in human nature and whose realization is conducive to human growth (Fromm 1947). In short, the hedonic approach focuses on subjectively-determined positive mental states, whereas the eudaimonic approach focuses on experiences that are objectively good for the person (Kagan 1992).

Contemporary research within psychology further indicates that laypeople may also hold conceptions of well-being that are similar to those advocated by professionals (e.g., King and Napa 1998; McMahan and Estes 2010; Ng et al. 2003; Pflug 2009; Tseng 2007). For example, research has found that lay conceptions of well-being incorporate both hedonic and eudaimonic aspects (King and Napa 1998), and individuals differ in the degree to which they conceptualize well-being in hedonic and eudaimonic terms (McMahan and Estes 2010).

Additionally, pleasure and meaning are consistently included in individuals' conceptions of well-being, but highly valued items that are theoretically not considered to be definitive of well-being, such as material wealth, are typically not included (King and Napa 1998; Tseng 2007). In general, laypersons' conceptions of well-being seem to mirror the conceptions of well-being provided by philosophers and psychologists, and laypeople seem to similarly differ in terms of the degree to which they advocate a more hedonic or eudaimonic definition of well-being.

HEDONIC VERSUS EUDAIMONIC APPROACHES TO WELL-BEING

The degree to which individuals define well-being in hedonic and eudaimonic terms has large practical implications and likely influences behavior in several domains of functioning, particularly those relevant to the experience of well-being (Ryan and Deci 2001). Implicit in theorizing on hedonic versus eudaimonic approaches to well-being is the assumption that these approaches are differently associated with positive psychological functioning. Specifically, eudaimonic theories maintain that many desired outcomes which are pleasurable may not necessarily be good for the individual and would thus not promote wellness (Ryan and Deci 2001).

To illustrate, dining at a fine restaurant and running a marathon may yield experiences of a similar hedonic quality, such as the experience of enjoyment and pleasure. However, running a marathon likely provides more opportunity for personal growth, self-development, and feelings of competency than dining at a fine restaurant and would thus likely yield increased well-being. Additionally, eudaimonic approaches to well-being, because they involve activities that are inherently good for the individual, are likely associated with long-term and enduring well-being, whereas the sense of well-being derived from the experience of simple pleasures likely dissipates in the short-term (Steger et al. 2008). In support, research indicates that physical pleasure is associated with life satisfaction in the short-term (i.e., within a day), but not in the long-term (i.e., over several weeks) (Oishi et al. 2001). Further, the positive effects of eudaimonic activity during a single day are associated with subsequent reports of well-being over several days (Steger et al. 2008).

PERSONALLY-EXPRESSIVE ACTIVITIES

(Waterman 2005; Waterman et al. 2008), and psychological well-being (Ryff 1989; Ryff and Singer 1998), have found that behaviors and cognition indicative of a eudaimonic approach are generally associated with positive psychological functioning. Research also indicates that in some cases, behaviors and cognition indicative of a hedonic approach may actually be detrimental to well-being. For example, sensation-seeking has been associated with a number of negative outcomes, including substance use (Carroll and Zuckerman 1977; Zuckerman 1994) and risky behaviors (Zuckerman 2009).

Although a great deal of research has documented the positive effects of eudaimonic activities, less research has examined the relative impact of both hedonic and eudaimonic approaches on well-being. Existing empirical research suggests, however, that eudaimonic approaches may be relatively more important for well-being than hedonic approaches. For example, daily eudaimonic activity was found to be more robustly associated with well-being than behaviors aimed at experiencing pleasure or obtaining material goods (Steger et al. 2008). Similarly, orientation to happiness, a construct measuring the degree to which individuals attempt to achieve happiness through pleasure, meaning, or engagement, has been found to be positively associated with life satisfaction (Peterson et al. 2005). Specifically, orientations to meaning and to engagement, representing eudaimonic approaches to well-being, have been found to be more robustly associated with life satisfaction than an orientation to pleasure in both national (e.g., Peterson et al. 2005) and cross-national studies (Park et al. 2009). Further, lay conceptions of well-being have been found to be associated with multiple self-report indicators of well-being, including satisfaction with life, vitality, positive affect, and meaning in life, with eudaimonic dimensions indicating more numerous and generally stronger associations with well-being than hedonic dimensions (McMahan and Estes 2010).

CHARACTER STRENGTHS

Character Strengths and Virtues is a groundbreaking handbook compiling the work of **researchers** to create a classification system for widely valued positive traits.

This handbook also intends to provide an empirical theoretical framework that will assist positive psychology practitioners in developing practical applications for the field.

There are 6 classes of virtues that are made up of 24 character strengths:

1. **Wisdom** and Knowledge
2. Courage Humanit
3. Justice
4. Temperance
5. Transcendence

Researchers approached the measurement of “good character” based on the strengths of authenticity, persistence, kindness, gratitude, hope, humor, and more.

Before you read on, we thought you might like to **download our 3 Positive Psychology Exercises for free**. These science-based exercises will explore fundamental aspects of positive psychology including strengths, values and self-compassion and will give you the tools to enhance the wellbeing of your clients, students or employees.

Cultures around the world have valued the study of human strength and virtue. Psychologists have a particular interest in it as they work to encourage individuals to develop these traits. While all cultures value human virtues, different cultures express or act on virtues in different ways based on differing societal values and norms.

Martin Seligman and his colleagues studied all major religions and philosophical traditions and found that the same six virtues (i.e. courage, humanity, justice, etc.) were shared in virtually all cultures across three millennia.

Since these virtues are considered too abstract to be studied scientifically, positive psychology practitioners focused their attention on the strengths of character created by virtues, and created tools for their measurement.

The main assessment instruments they used to measure those strengths were

- Structured interviews
- Questionnaires
- Informant Reports
- Behavioral Experiments
- Observations

The main criteria for characters strengths that they came up with are that each trait should:

- Be stable across time and situations
- Be valued in its own right, even in the absence of other benefits
- Be recognized and valued in almost every culture, be considered non-controversial and independent of politics.
- Cultures provide role models that possess the trait so other people can recognize its worth.
- Parents aim to instill the trait or value in their children.

THE CSV HANDBOOK’S LIST

The Handbook delves into each of these six traits. We’ve summarized key points here.

1. VIRTUE OF WISDOM AND KNOWLEDGE

The more curious and creative we allow ourselves to become, the more we gain perspective and wisdom and will, in turn, love what we are learning. This is developing the virtue of wisdom and knowledge. Strengths that accompany this virtue involve acquiring and using knowledge:

- Creativity (e.g. Albert Einstein's creativity led him to acquire knowledge and wisdom about the universe)
- Curiosity
- Open-mindedness
- Love of Learning
- Perspective and Wisdom (Fun fact: many studies have found that adults' self-ratings of perspective and wisdom do not depend on age, which contrasts the popular idea that our wisdom increases with age).

2. VIRTUE OF COURAGE

The braver and more persistent we become, the more our integrity will increase because we will reach a state of feeling vital, and this results in being more courageous in character.

Strengths that accompany this virtue involve accomplishing goals in the face of things that oppose it:

- Bravery
- Persistence
- Integrity
- Vitality

3. VIRTUE OF HUMANITY

There is a reason why Oprah Winfrey is seen as a symbol of virtue for humanitarians: on every show, she approaches her guests with respect, appreciation, and interest (social intelligence), she practices kindness through her charity work, and she shows her love to her friends and family.

Strengths that accompany this virtue include caring and befriending others:

- Love
- Kindness
- Social intelligence

4. VIRTUE OF JUSTICE

Mahatma Gandhi was the leader of the Indian independence movement in British-ruled India. He led India to independence and helped create movements for civil rights and freedom by being an active citizen in nonviolent disobedience. His work has been applied worldwide for its universality. Strengths that accompany this virtue include those that build a healthy and stable community:

- Being an active citizen who is socially responsible, loyal, and a team member.
- Fairness
- Leadership

5. VIRTUE OF TEMPERANCE

Being forgiving, merciful, humble, prudent, and in control of our behaviors and instincts prevents us from being arrogant, selfish, or any other trait that is excessive or unbalanced. Strengths that are included in this virtue are those that protect against excess:

- Forgiveness and mercy
- Humility and modesty
- Prudence
- Self-Regulation and Self-control

6. VIRTUE OF TRANSCENDENCE

The Dalai Lama is a transcendent being who speaks openly why he never loses hope in humanity's potential. He also appreciates nature in its perfection and lives according to what he believes is his intended purpose.

Strengths that accompany this virtue include those that forge connections to the larger universe and provide meaning:

- Appreciation of beauty and excellence
- Gratitude
- Hope
- Humor and playfulness
- **Spirituality**, or a sense of purpose

POSITIVE PSYCHOLOGY & CHARACTER STRENGTHS AND VIRTUES

Positive psychology practitioners can count on practical applications to help individuals and organizations identify their strengths and use them to increase and maintain their levels of well-being. They also emphasize that these character strengths exist on a continuum; positive traits are regarded as individual differences that exist in degrees rather than all-or-nothing categories.

In fact, the handbook has an internal subtitle entitled “A Manual of the Sanities” because it is intended to do for psychological well-being what the DSM does for psychological disorders: to add systematic knowledge and ways to master new skills and topics.

Research shows that these human strengths can act as buffers against mental illness. For instance, being optimistic prevents one’s chances of becoming depressed. The absence of particular strengths may be an indication of psychopathology. Positive psychology therapists, counselors, coaches, and other psychological professions use these new methods and techniques to help build people’s strength and broaden their lives.

It should be noted that many researchers are advocating grouping these 24 traits into just four classes of strength (Intellectual, Social, Temperance, and Transcendence) or even three classes (excluding transcendence), as evidence has shown that these classes do an adequate job of capturing all 24 original traits.

Others caution that people occasionally use these traits to excess, which can become a liability to the person. For example, some people may use humor as a defense mechanism in order to avoid dealing with a tragedy or coma.

WHAT STRENGTHS DO WOMEN SCORE HIGHER?

There’s an interest in identifying dominant character strengths in genders and how it is developed. As Martin Seligman and his colleagues studied all major religions and philosophical traditions to find universal virtues, much of the research on gender and character strengths have been cross-cultural also.

In a study by Brdar, Anic, & Rijavec on gender differences and character strengths, women scored highest on the strengths of honesty, kindness, love, gratitude, and fairness.

Life satisfaction for women was predicted by zest, gratitude, hope, appreciation of beauty/excellence, and love for other women. A recent study by Mann showed that women tend to score higher on gratitude than men. Alex Linley and colleagues reported in a UK study that women not only scored higher in interpersonal strengths, such as love and kindness, but on social intelligence, too.

In a cross-cultural study in Spain by Ovejero and Cardenal, they found that femininity was positively

correlated with love, social intelligence, appreciation of beauty, love of learning, forgiveness, spirituality, and creativity. The more masculine a man was, the more he correlated negatively with these character strengths.

WHAT STRENGTHS DO MEN SCORE HIGHER?

Brdar, Anic & Rijavac reported that men score highest on honesty, hope, humor, gratitude, and curiosity.

Their life satisfaction was predicted by creativity, perspective, fairness, and humor. Alex Linley and colleagues study showed that men scored higher than females on creativity.

Miljković and Rijavec's study found sex differences in a sample of college students. Men not only scored higher in creativity, but also leadership, self-control, and zest. These findings are congruent with gender stereotypes, as the study by Ovejero and Cardenal in Spain showed that men did not equate typical masculine strengths with love, forgiveness, love of learning, and so on.

In a Croatian sample, Brdar and colleagues found that men viewed cognitive strengths as a greater predictor for life satisfaction. Men saw strengths such as teamwork, **kindness**, perspective, and courage to be a stronger connection to life satisfaction than other strengths. There is an important limitation to this sample population, as most of the participants were women.

WHAT CAN WE LEARN FROM BOTH?

While there are differences in character strengths between men and women, there are many that they share. Both genders saw gratitude, hope, and zest as being related to higher life satisfaction, as well as the tendency to live in accordance with the strengths that are valued in their particular culture.

Studies confirm that there is a duality between genders, but only when both genders identify strongly with gender stereotypes. It makes one wonder if men and women are inherently born with certain strengths, or if the cultural influence of certain traits prioritizes different traits based on gender norms.

Learn more about **strengths and weaknesses tests here**.

Development of Character Strengths in Children

Peterson and Seligman's, Character Strengths in Action handbook (2004) theorized that it is not common for some young children to demonstrate gratitude, open-mindedness, authenticity, and forgiveness.



Park and Peterson's study (2006) confirmed this theoretical speculation, concluding that these sophisticated character strengths usually require a degree of cognitive maturation that develops during adolescence. So although gratitude is associated with happiness in adolescents and adulthood, this is not the case in young children.

Park and Peterson's study found that the association of gratitude with happiness starts at age seven "Gratitude is seen as a human strength that enhances one's personal and relational well-being and is beneficial for society as a whole." – Simmel

Although most young children are not yet cognitively mature enough for sophisticated character strengths, there are many fundamental character strengths that are developed at a very early stage. The strengths of love, zest, and hope are associated with happiness starting at a very young age. The strengths of love and hope are dependent on the infant and caregiver relationship. A secure attachment to the caregiver at infancy is more likely to result in psychological and social well adjustment throughout their lives.

The nurturing of a child plays a significant role in their development, and role modeling is an important way of teaching a child certain character strengths as they imitate behavior and can then embrace the strength as one of their own.

Most young children don't have the cognitive maturity to display gratitude but have the ability to display love and hope. Therefore, gratitude must not be expected from a young child but must be taught.

Positive education programs have been developed to help children and adolescents focus on character strengths. There are certain character strengths in adolescents that have a clearer impact on psychological well-being. These strengths must be fostered to ensure life long

fulfillment and satisfaction.

“Character strengths are influenced by family, community, societal, and other contextual factors. At least in theory, character strengths are malleable; they can be taught and acquired through practice.” – Gillham, et al

CHARACTER STRENGTHS AND WELL-BEING IN ADOLESCENTS

The majority of the research today on character strengths focuses on adults, despite the known importance of childhood and adolescence on character development.

Research into character strengths shows which promote positive development and prevent psychopathology.

Dahlsgaard, Park, and Peterson discovered that adolescents with higher levels of zest, hope, and leadership displayed lower levels of anxiety and depression in comparison to their peers with lower levels of these strengths. Other research findings suggested that adolescent character strengths contribute to well-being (Gillham, et al, 2011).

The research suggests that transcendence (eg. gratitude, meaning, and hope) predicts life satisfaction, demonstrating the importance of adolescents developing positive relationships, creating dreams, and finding a sense of purpose.

VIA CHARACTER STRENGTHS YOUTH SURVEY

Parents, educators, and researchers have requested the VIA: institute on character strengths to develop a VIA survey that is especially aimed at youths. Take the **VIA psychometric data – youth survey** if you are between the ages of 10-17.

CONCLUSION

The measurement of character strengths and the different traits that go into making them have many applications, from life satisfaction to happiness and other well-being predictors. These measurement tools have been used to study how these strengths have been developed across genders and age groups.

What strengths do you possess? What implications can you see this research having in our world today? Can you see how it may apply to your own life?

Please share your thoughts in the comment section below. We hope you enjoyed reading this article. Don't forget to **download our 3 Positive Psychology Exercises for free**. If you wish for more, our **Positive Psychology Toolkit**© contains over 300 science-based positive psychology exercises, interventions, questionnaires and assessments for practitioners to use in their therapy, coaching or workplace.

RESILIENCE AND POST-TRAUMATIC GROWTH

Resilience: How we piece ourselves back together Resilience is a broad and complex concept that encompasses all the patterns of behavior which contribute to a person adapting to distressing life circumstances. Resilience is the ability to cope with negative emotions that arise from a stressful experience and function at normal or close to normal capacity; resilience then is a demonstration of survival in the face of overwhelming life circumstances. A range of factors have been identified

that are linked to resiliency—they encompass attributes of a person, such as being sociable, having a sense of humor and being hopeful; as well as social dimensions such as experiences of parental warmth, nurturing in the family unit, support at school and success in at least one area of life .

Resilience in a specific area of one's life does not guarantee resilience across all functional areas. Indeed, research into, and theories of resilience indicate that resilience in one area of life can co-exist with high risk behaviors, social and emotional withdrawal, and maladaptive survival tactics. Further experience of childhood trauma is associated with lower levels of resilience and PTG following a traumatic event in adulthood.

Yet, people who suffer trauma can be viewed as having enormous potential to survive and the survival tactics used must be seen as normal reactions to abnormal circumstances.

POST TRAUMATIC GROWTH:

Post Traumatic Growth (PTG) refers to positive changes that are experienced by an individual as a result of a struggle with highly challenging life circumstances .

The life circumstances must constitute a trauma, crisis, or highly stressful experience that challenges the way a person sees the world and their place in it. Experiences where one faces death, disabling injury, or significant loss of possessions may cause people to question what is meaningful in life. Research by Tedeschi and Calhoun in the area of PTG has contributed to our understanding of what constitutes PTG and what is needed to achieve it. The researchers identified five types of PTG (2)

1. Greater appreciation for life, which may include a shift in priorities, seeing pleasure in things that were once taken for granted.
2. Closer, more intimate relationships with others, characterized by increased compassion and empathy for others.
3. Seeing new opportunities in life and setting new life goals. This often requires the person to let go of the possibilities and goals that were part of their life before the trauma.
4. A sense of increased personal strength - recognizing that bad experiences happen, we are vulnerable, but survival is possible.
5. Positive spiritual change such as greater affinity with one's faith and more engagement with the bigger questions about one's existence and humanity. It's important to keep in mind that growth does not occur as a direct consequence of the traumatic experience but in the aftermath of it and the struggle to find a new normal. Growth can, and usually does, happen during the same period of time that unpleasant psychological and emotional reactions are present. How does growth happen? Growth is considered to be both an outcome and a process.

Two main processes are involved in achieving growth:

EMOTIONAL PROCESSING:

In the time following a traumatic experience individuals are often consumed by overwhelming emotion which can be described as intrusive and distressing. Being aware of those emotions, having a willingness to feel the feelings and expressing/disclosing the emotions are critical to moving toward growth. When a person is able to identify those distressing emotions yet still be able to experience positive emotions, then growth from the experience is much more likely. Emotional processing then requires a level of literacy about emotions in order to engage in the

cognitive processes and to make meaning of the experience. This is often a lengthy process.

COGNITIVE PROCESSING

involves recognizing that life has changed and now must be restructured with a new identity. The traumatic experience becomes part of this new identity and a new life purpose is established. Resilience is required for growth to occur; you have to be able to survive the initial distress in order to achieve positive growth. Being resilient, however, does not necessarily ensure growth will happen.

WHAT IS HEALTH: HEALTH PROMOTING AND HEALTH COMPROMISING BEHAVIORS, LIFE STYLE AND CHRONIC DISEASES [DIABETES, HYPERTENSION, CORONARY HEART DISEASE], PSYCHONEUROIMMUNOLOGY [CANCER, HIV/AIDS]?

HEALTH

Health psychology is a specialty area that focuses on how biology, psychology, behavior, and social factors influence health and illness. Other terms including medical psychology and behavioral medicine are sometimes used interchangeably with the term health psychology.

Health and illness are influenced by a wide variety of factors. While contagious and hereditary illness are common, many behavioral and psychological factors can impact overall physical well-being and various medical conditions.

The field of health psychology is focused on promoting health as well as the prevention and treatment of disease and illness. Health psychologists also focus on understanding how people react to, cope with, and recover from illness. Some health psychologists work to improve the health care system and the government's approach to health care policy.

Illnesses Related to Psychological and Behavioral Factors

- Stroke
- Heart disease
- HIV/AIDS
- Cancer
- Birth defects and infant mortality
- Infectious diseases

Division 38 of the American Psychological Association is devoted to health psychology. According to the division, their focus is on a better understanding of health and illness, studying the psychological factors that impact health, and contributing to the health care system and health policy.

The field of health psychology emerged in the 1970s to address the rapidly changing field of healthcare. Life expectancy was much lower then, due to lack of basic sanitation and the prevalence of infectious diseases. Today, life expectancy in the U.S. is around 80 years, and the leading causes of mortality are chronic diseases often linked to lifestyle.² Health psychology helps address these changes in health.

By looking at the patterns of behavior that underlie disease and death, health psychologists hope to help people live better, and healthier, lives.

How Is Health Psychology Unique?

Because health psychology emphasizes how behavior influences health, it is well positioned to help people change the behaviors that contribute to health and well-being. For example, psychologists who work in this field might conduct applied research on how to prevent unhealthy behaviors such as smoking and look for new ways to encourage healthy actions such as exercising.

For example, while most people realize that eating a diet high in sugar is not good for their health, many people continue to engage in such behaviors regardless of the possible short-term and long-term consequences. Health psychologists look at the psychological factors that influence these health choices and explore ways to motivate people to make better health choices.³

The US Centers for Disease Control National Center for Health Statistics compiles data regarding death in the nation and its causes. Congruent with data trends throughout this century, nearly half of all deaths in the United States can be linked to behaviors or other risk factors that are mostly preventable. Specifically, in the most recent CDC report (2012), the rate of death has declined for all leading causes except suicide; life expectancy is at an all-time high (78.8 years); and yet every hour about 83 Americans die from heart disease and stroke. More than a quarter of those deaths are preventable.

Cancer remained second; followed chronic lower respiratory diseases, primarily chronic obstructive pulmonary diseases (COPD) such as emphysema and chronic bronchitis; followed by drug poisonings including overdoses and then fatal falls among an increasingly elder population.)⁴ Current Issues in Health Psychology Health psychologists work with individuals, groups, and communities to decrease risk factors, improve overall health, and reduce illness. They conduct research and provide services in areas including:

- Stress reduction
- Weight management
- Smoking cessation
- Improving daily nutrition
- Reducing risky sexual behaviors
- Hospice care and grief counseling
- Preventing illness
- Understanding the effects of illness
- Improving recovery

Teaching coping skill

The Biosocial Model in Health Psychology

Today, the main approach used in health psychology is known as the biosocial model. According to this view, illness and health are the results of a combination of biological, psychological, and social factors.⁵

- **Biological factors** include inherited personality traits and genetic conditions.
- **Psychological factors** involve lifestyle, personality characteristics, and stress levels.
- **Social factors** include such things as social support systems, family relationships, and cultural beliefs.

Health Psychology in Practice

Health psychology is a rapidly growing field. As increasing numbers of people seek to take control of their own health, more and more people are seeking health-related information and resources. Healthpsychologists are focused on educating people about their ownhealth and well-being, so they are perfectly suited to fill this rising demand.

Many health psychologists work specifically in the area of prevention, focusing on helping people stop health problems before they start.

This may include helping people maintain a healthy weight, avoid risky or unhealthy behaviors, and maintain a positive outlook that can combat stress, depression, and anxiety.

Another way that health psychologists can help is by educating and training other health professionals. By incorporating knowledge fro health psychology, physicians, nurses, nutritionists, and other healthpractitioners can better incorporate psychological approaches into how they treat patients.

HEALTH PROMOTION

Health promotion is among the foremost concerns of modern society. As with many problems of considerable social significance, most health problems are caused by what people do and what people do not do. People eat too much, exercise too little, and visit healthcare providers too infrequently, among many other things.

Understanding and solving these problems is a task for the behavioral sciences, and applied behavior analysts have been addressing problems related to health and fitness since the earliest days of the field.

The primary focus of this chapter is on applied behavior analysis research related to health promotion through diet, exercise,and medication adherence, as addressing these issues would significantly improve health across many populations.

Health promotion is the process of enabling people and communities to increase control over factors that influence their health, and thereby to improve their health (adapted from the Ottawa Charter of Health Promotion, 1986; Box 2.7). Health promotion is a guiding concept involving activities intended to enhance individual and community health and well-being (Box 2.8). It seeks to increase involvement and control by the individual and the community in their own health. It acts to improve health and social welfare, and to reduce specific determinants of diseases and risk factors that adversely affect the health, well-being, and productive capacities of an individual or society, setting target based on the size of the problem but also the feasibility of successful intervention, in a cost-effective way. This can be through direct contact with the patient or risk group, or act indirectly through changes in the environment, legislation, or public policy. Control of AIDS relies on an array of interventions that promote change in sexual behavior and other contributory risks such as sharing of needles among drug users, screening of blood supply, safe hygienic practices in health care settings, and education of groups at risk such as teenagers, sex workers, migrant workers, and many others. Control of AIDS is also a clinical problem in that patients need antiretroviral therapy (ART), but this becomes a management and policy issue for making these drugs available and at an affordable price for the poor countries most affected. This is an example of the challenge and effectiveness of health promotion and the New Public Health.

HEALTH PROMOTION INTERVENTIONS

Health promotion interventions have also been shown to have beneficial effects on PCMDs. These interventions include developing skills to improve perinatal health, teaching women about infant development, engaging and stimulating infants, and encouraging sensitivity and responsiveness toward infants. These types of interventions aim to improve mother-infant interaction and maternal self-efficacy and satisfaction (Rahman et al., 2013) and often give women an opportunity to share concerns and feelings, and receive social support from a group (Clarke et al., 2013).

The systematic reviews of PCMD treatment reported that health promotion interventions brought about improvements in PCMDs compared with usual care but with smaller effect sizes than the psychological interventions (Clarke et al., 2013). These studies included those conducted by Cooper et al. (2002, 2009), Baker-Henningham, Powell, Walker, and Grantham-McGregor (2005), Rahman, Iqbal, Roberts, and Husain (2009), Tripathy et al. (2010), Morris et al. (2012), Langer et al. (1996), le Roux et al. (2013), Robledo-Colonia, Sandoval-Restrepo, Mosquera-Valderrama, Escobar-Hurtado, and Ramírez-Vélez (2012), and Aracena et al. (2009). Clarke et al. examined seven of these health promotion interventions and reported a pooled effect size of -0.15 ; (95% CI: -0.27 and -0.02) on PCMDs. This effect size is much smaller than for psychological interventions but still larger than for no treatment.

HEALTH PROMOTION IN SCHOOLS

Health promotion in schools is a topic of both practical and empirical interest. Schools which provide comprehensive school health promotion programs are more effective in encouraging children to adopt health-enhancing behaviors and reducing health-compromising behaviors than schools that provide health education alone. Quantitative reviews of prevention and intervention programs targeting adolescent drug use, smoking, and alcohol consumption were presented. Research into the effectiveness of comprehensive school health programs provides evidence of the positive influence that such programs can exert on student health behaviors. However, conditions that enable effective school health promotion programs to be initiated and maintained depend on several school organizational and program implementation factors.

These strategies are supported by five priority action areas as outlined in the Ottawa Charter for health promotion

- Build healthy public policy.
- Create supportive environments for health.
- Strengthen community action for health.
- Develop personal skills.
- Reorient health services.

1. Address the population as a whole in health-related issues, in everyday life as well as people at risk for specific diseases.
2. Direct action to risk factors or causes of illness or death.
3. Undertake activist approach to seek out and remedy risk factors in the community that adversely affect health.
4. Promote factors that contribute to a better condition of health of the population.
5. Initiate actions against health hazards, including communication, education, legislation, fiscal measures, organizational change, community development, and spontaneous local activities.
6. Involve public participation in defining problems and deciding on action.
7. Advocate relevant environmental, health, and social policy.
8. Encourage health professional participation in health education and health advocacy.

9. Advocate for health based on human rights and solidarity.
10. Invest in sustainable policies, actions, and infrastructure to address the determinants of health.
11. Build capacity for policy development, leadership, health promotion practice, knowledge transfer and research, and health literacy.
12. Regulate and legislate to ensure a high level of protection from harm and enable equal opportunity for health and well-being for all people.
13. Partner and build alliances with public, private, non-governmental, and international organizations and civil society to create sustainable actions.
14. Make the promotion of health central to the global development agenda.

Salutogenesis

Health promotion is the process by which people increase their control over the determinants of their own health, thereby improving health and quality of life. In this context, quality of life refers to the perception that one is capable of managing one's health and life, that one's needs are being met, and that one is not being denied opportunities to achieve happiness and life satisfaction, regardless of eventual health, social, or economic limitations (World Health Organization, 1986). This perspective calls for a model of health promotion that emphasizes the development of empowerment and it is coherent with Aaron Antonovsky's concept of salutogenesis in which individuals are responsible, active, and participative (Eriksson & Lindström, 2006).

The theory of salutogenesis, or the salutogenic model (Antonovsky, 1996), represents a paradigm change in health promotion because it focuses on the factors that facilitate or optimize health rather than on the treatment or prevention of diseases (ie, the pathogenic model). Antonovsky suggested that health promotion has been overly concerned with risk factors rather than attempting to understand how people move in the direction of health. The salutogenic approach underlines the need for people to understand the factors that actively promote health instead of concentrating efforts and resources on negative outcomes. Hence, the assets model attempts to synthesize evidence based on the combination of factors that protect or promote health, well-being, and achievement (Morgan & Ziglio, 2007).

Antonovsky (1996) developed his salutogenic model during the Second World War, trying to determine what helps people maintain health under dramatic situations and how they recover from such situations. He suggested that those who have more favorable biological, psychosocial, and material resources, so-called general life resources (eg, money, social capital, cultural capital, intelligence), are more successful in dealing with life's challenges and recovering from life's problems than those who have fewer such resources (Rivera, Ramos, & Moreno, 2011).

Furthermore, Antonovsky (1996) referred to the importance of what he called the (internal) sense of coherence (SOC): a "generalized orientation towards the world, which perceives it, in a continuum, as comprehensible, manageable and meaningful" (p. 15). The SOC has three dimensions: the cognitive dimension or comprehensibility; the behavioral dimension or manageability, and the motivational dimension or meaningfulness. The SOC is thought to facilitate movement toward health because it provides the individual with the sense that the world and life events are understandable, ordered, and even predictable (ie, comprehensibility), the belief that one has the necessary resources to cope and manage events (ie, manageability), and the belief that life's challenges are worthy of investment of effort and resources (ie, meaningfulness; Rivera, Garcia-Moya, Moreno, & Ramos, 2013).

Psychosocial correlates of health compromising

The major causes of adolescent mortality are not diseases, but are primarily related to preventable social, environmental and behavioral factors (Irwin and Millstein, 1986; Millstein, 1989). The three primary causes of mortality during adolescence are injuries, homicide and suicide; together they are responsible for 75% of all adolescent deaths (Millstein et al, 1993).

Major sources of morbidity include injury and disability associated with the use of motor or recreational vehicles, pregnancy complications, sexually transmitted diseases and consequences of substance abuse (Millstein et al., 1993).

Among adolescent females, eating disorders are another significant source of morbidity, and the use of unhealthy weight loss methods may have numerous psychological and physical health consequences (Nylander, 1971; Pugliese et al., 1983; French and Jeffery, 1994; Neumark-Sztainer, 1995).

To improve adolescent health it is essential to reduce the frequency, delay the onset and aim towards the prevention of behaviors associated with morbidity and mortality among youth. Following the identification of health-compromising behaviors to be targeted for intervention, the next step in building effective prevention programs is to understand the factors associated with these behaviors among adolescents at different stages of development.

Numerous studies on health-compromising behaviors among adolescents indicate that these Social Cognitive Theory (SCT) discusses the importance of personal, socio-environmental and behavioral factors on behavior and the reciprocal relations between all of these factors (Bandura, 1977, 1986). SCT has particular relevance for explaining involvement in health-compromising behaviors among youth. Jessor has developed a model specifically aimed at explaining adolescent risk behavior/lifestyle which incorporates a number of principles similar to those in SCT (Jessor, 1991, 1992, 1993). Personal, socio-environmental and behavioral factors are shown to influence adolescent risk behavior with reciprocal relationships among all of the factors.

1). Personal factors include those from the psychological domain: self-esteem, emotional well-being and risk-taking disposition. Socioenvironmental factors include both actual and perceived components such as family structure and family connectedness, school connectedness, and stressful life experiences such as past physical and sexual abuse.

Behavioral factors include school achievement, involvement in extracurricular activities and attendance at religious services. It should be noted that the placement of these variables into these larger categories is not clearcut as most of these variables have personal, Health-compromising behaviors Unhealthy weight loss behaviors Respondents indicated involvement in any of the following behaviors for weight control purposes: laxative use, water pills (diuretics), diet pills and vomiting. Internal consistency as measured by Cronbach's α was 0.60. Scores ranged from 0 to 4, for the number of methods used.

SUBSTANCE ABUSE BEHAVIORS RESPONDENTS

indicated frequency and quantity of consumption for cigarettes, alcohol and marijuana. Responses to six questions were summed ($\alpha = 0.81$).

Delinquent behavior

Adolescents reported the frequency with which they had damaged or destroyed property; hit or beat up another person; or taken something from a store without paying for it, over the past 12 months. Responses were summed ($\alpha = 0.84$).

SEXUAL ACTIVITY

Adolescents in the ninth and 12th grades indicated: whether they ever had sexual intercourse, number of opposite gender partners over the past 12 months and frequency of birth control use. Responses were summed with higher scores indicating higher risk sexual activity (more partners and less use of birth control) ($\alpha = 0.98$). Data on sexual behaviors were not collected on sixth graders.

SUICIDE ATTEMPTS

Adolescents completed two questions regarding suicidal ideation and behaviors, and indicated whether they had thought about, or attempted suicide, over a year ago, during the past year, both or never. Responses were summed with higher scores indicating increased suicidal risk ($\alpha = 0.54$). Strength of association between psychosocial variables and health-compromising behaviors were examined with Pearson's correlation coefficients separately among males and females.

Associations between psychosocial variables were also examined using Pearson's correlation coefficients. Multiple stepwise linear regressions were employed in analyzing associations between psychosocial variables and health-compromising behaviors.

Health-compromising behaviors were the dependent variables, and separate regressions were run on each behavior for the different age and gender groups. The contribution of each psychosocial variable to the total explained variance in the behaviors and the total percent of variance explained by all of the psychosocial variables included in the analyses was determined.

LIFESTYLE, AND HEALTH

Few would deny that today's college students are under a lot of pressure. In addition to many usual stresses and strains incidental to the college experience (e.g., exams, term papers, and the dreaded freshman 15), students today are faced with increased college tuitions, burdensome debt, and difficulty finding employment after graduation. A significant population of non-traditional college students may face additional stressors, such as raising children or holding down a full-time job while working toward a degree.

Of course, life is filled with many additional challenges beyond those incurred in college or the workplace. We might have concerns with financial security, difficulties with friends or neighbors, family responsibilities, and we may not have enough time to do the things we want to do. Even minor hassles—losing things, traffic jams, and loss of internet service—all involve pressure and demands that can make life seem like a struggle and that can compromise our sense of well-being. That is, all can be stressful in some way.

Scientific interest in stress, including how we adapt and cope, has been longstanding in psychology; indeed, after nearly a century of research on the topic, much has been learned and many insights have been developed. This chapter examines stress and highlights our current understanding of the phenomenon, including its psychological and physiological natures, its causes and consequences, and the steps we can take to master stress rather than become its victim.

All lifestyle factors were associated with the mental health outcomes. Better mental health was linked to higher frequency of physical and mental activity, moderate alcohol consumption (i.e. not increased or no alcohol consumption), non-smoking, a body mass index within the range of normal to overweight (i.e. not underweight or obese) and a regular life rhythm. The more healthy lifestyle choices an individual makes, the higher life satisfaction and lower psychological distress he or she tends to have.

CHRONIC DISEASES [DIABETES, HYPERTENSION, CORONARY HEART DISEASE],

A chronic illness is “a long-lasting condition that can be controlled but not cured” (University of Michigan Center for Managing Chronic Disease, 2011). Examples in children include asthma, diabetes, cancer and organ failure. Most children and their families adapt well to living with a chronic illness. Some have greater difficulty with adjustment and coping, however. Adjustment problems can occur at the time of diagnosis, or may arise later on, as the result of the chronic stress of living with an illness. Adjustment problems are also more likely in children who had prior behavioral or psychological problems, or in families with higher levels of conflict.

Children or families who are having difficulty coping with medical illness can be seen by Texas Children’s experts in [Psychology](#).

Adjustment at diagnosis

When a child is first diagnosed with a chronic illness, all families experience some combination of shock, disbelief, anger, fear and worry. Children may ask, “Why me?” And parents will ask, “Why did this happen to my child?” These are normal reactions to diagnosis and usually lessen with time. However, diagnosis of a chronic illness can be **traumatic** for some children and their parents. As many as 1 in 5 children and parents experience acute stress at the time of diagnosis that may benefit from additional support.

You may want to speak with a pediatric health psychologist or another mental health professional if you or your child:

- can’t stop thinking about the diagnosis or worrying about the illness and its complications
- can’t sleep, can’t concentrate, feel overly jittery or stressed
- avoid any reminders of the illness
- one or more of these symptoms lasts for more than 1-2 weeks

Many parents also **feel guilty** and worry that they did something to cause their child’s illness. It is important to understand that there was nothing anyone did to cause the illness, and almost certainly nothing anyone could have done to prevent it.

CHRONIC ILLNESS AS CHRONIC STRESS

After diagnosis, families find that they have to make many changes to their daily routines to manage the illness effectively. Children may start to think of themselves differently, and parents have to face a new set of worries. Living with a chronic illness can bring many challenges, including: physical symptoms such as discomfort or pain

- treatments that can be unpleasant or difficult to follow consistently
- lifestyle changes, such as having to follow dietary restrictions
- the need for high levels of parental monitoring
- the need for more frequent medical attention, possibly including repeated hospitalizations

- disruptions to normal life, such as missing school, or having restrictions on activities
- uncertainty regarding complications, long-term outcomes, or (in the case of an illness like cancer) possible recurrence

All of these factors can cause significant **chronic stress** for the child, the parents, and other family members. Stress, in turn, can take a psychological toll on children and families. Psychological difficulties experienced by children with chronic illness include:

- persistent worries and fears about the illness and its long-term effects
- fear of dying
- fear of the hospital or medical procedures
- persistent sadness, anger, irritability, or excessive moodiness
- changes in self esteem
- concerns about physical appearance and body image issues
- behavior problems social difficulties, especially getting teased

You may want to speak with a pediatric health psychologist or another mental health professional if any of the problems above last for more than a week or 2, and either:

- cause your child distress
- disrupt sleep
- cause a loss of interest in fun things or activities
- create conflict with other people

PARENTING A CHILD WITH A CHRONIC ILLNESS

Parenting a child with a chronic illness can also be a source of significant stress for caregivers. It is important for parents to make sure to take care of themselves as well as their child, to manage daily stress, and to seek help from family, friends, community organizations, or mental health professionals when needed.

Chronic illness can also change how caregivers parent. Parents may become overprotective because of increased fears of their child's vulnerability. They may also become more reluctant to set limits for a child's behavior, especially if the child has experienced a life-threatening emergency or an extended period of hospitalization or treatment. In general, parents can help their child cope by:

- setting the same clear, consistent limits for behavior they would for any other child
- expressing warmth and support
- fostering as normal a life as possible

Developmental issue

Having a chronic illness can affect the normal course of a child's development in different ways. A chronic illness may limit the child from engaging in activities that contribute to development. For example, some children being treated for cancer may not be able to attend school or see friends during treatment due to reduced immune system functioning; a child with a heart transplant may not be allowed to participate in sports; or a child with type 1 diabetes may not be allowed by parents to go on sleepovers at a friend's house due to concerns that the other parents will not know how to manage the illness. Sometimes these limits are set by the child's medical provider; at other times, limits are set by parents who may have become overprotective.

- It is very important to help a child with a chronic illness have as normal a life as possible, within

the bounds set by the medical team.

- Ask the medical team if you have any questions about whether an activity is okay for your child.
- If you remain concerned about an approved activity, try to think through ways in which the possible risks can be minimized so that your child can participate safely.
- Seek out alternative activities that can provide similar experiences.

EFFECTS ON LEARNING

Some chronic conditions can be associated with learning problems. This can occur because the child misses a lot of school due to health problems or for extended periods of medical treatment. Parents should speak to their child's school about developing a **504 Plan** for their child to ensure appropriate accommodations are made so that their child can still access and receive a free and appropriate public education.

Some conditions and their treatment can also more directly result in learning or attention problems. Children with a chronic illness who are having difficulty with learning or attention can be seen by Texas Children's experts in Neuropsychology.

DEVELOPING AUTONOMY

For adolescents, chronic illness may disrupt changing relationships with parents and friends and interfere with the process of gaining independence and autonomy. An adolescent with a chronic illness may be less comfortable with becoming less dependent on parents. On the other hand, parents may become more resistant to the adolescent's efforts to act independently.

Some ways to address the conflict between normal development of independence, while still addressing health care needs of the chronic illness, include the following:

- Involve adolescents in health-related discussions (for example, current concerns about their illness, treatment choices).
- Teach adolescents self-care skills related to their illness.
- Encourage adolescents to monitor and manage their own treatment needs.
- Encourage the development of coping skills to address problems or concerns that might arise related to their illness.
- Encourage older adolescents to begin to meet with their healthcare providers themselves.

Continued parent involvement

While it is important to encourage adolescents' increased autonomy, it is also important for parents to maintain continued involvement in illness management. Youth whose parents stay involved in chronic illness management in developmentally-appropriate ways tend to have much better control of their illnesses and their symptoms. The challenge is finding a good balance between parent involvement and youth independence, which parents can foster by:

- Communicating openly. Allow the teen to openly express thoughts, feelings, preferences, problems and concerns related to illness management, and listen without judgment.
- Working together to think through and solve problems related to illness management.
- Not pushing independence before the adolescent is ready for it. Instead, ask what the adolescent wants to do more independently, and ask what you can do to help.

You might want to speak with a pediatric health psychologist if significant parent-child conflict arises around illness management.

RELATIONSHIPS WITH PEERS

Chronic illness and treatment may also interfere with time spent with peers or in the school setting, which is the adolescent's primary social environment. Self-esteem issues related to acceptance of one's self and concerns about acceptance by others can be intensified by chronic illness and related treatment needs. To address these concerns, consider the following:

Encourage spending time with friends. Help problem-solve any potential barriers

- Discuss concerns about what information to share with friends.
- Support children and adolescents who are bullied by peers. Enlist school personnel to address the bullying.
- Encourage and assist friends in being supportive. Involve friends' parents in this as needed.

ADHERENCE TO TREATMENT AND LIFESTYLE CHANGES

As adolescents with chronic illness learn more about their illness and take more responsibility for its management, they will begin to make their own decisions about management. They may also experiment. For example, trials of decreasing their medication or not taking it without consulting healthcare providers may occur. Teens may also make different decisions when they are alone versus when they are with friends; in general, they are less likely to complete illness management tasks when with friends. While these behaviors are developmentally normal, they create the need for continued parental monitoring and support.

- Encouraging open discussions with teens around treatment choices, and taking a nonjudgmental approach to the choices they make, is crucial if parents want to continue to have an influence over these decisions.
- Parents should view these attempts as opportunities for discussion and active problem-solving with their teen, rather than as deviations to be punished. If an adolescent does not complete a treatment task (like taking medication), encourage discussion of what happened and why and what can be done in the future, rather than reprimanding the teen
- Teach and encourage use of problem-solving skills related to their illness. Ask questions, such as: "What do you think you would do if...?" or "What do you think would happen if...?" Encourage adolescents to ask you the same kinds of questions.
- Encourage teens to share their ideas and concerns with their healthcare providers.
- Work on "team building" between the adolescent, parents, and healthcare providers.

BURNOUT

Angry or self-conscious feelings related to having a chronic illness can significantly affect adherence with recommended treatment or management techniques. Adherence may also decline over time due to disease management burnout, which is very common, especially among teens. Teens may come to feel discouraged, especially if it has proven difficult to gain good illness control, and this can progress to feelings of helplessness and hopelessness. To help:

- Recognize how difficult and frustrating it can be to live with and manage a chronic illness.
- Ask if the youth feels burned out or discouraged about illness management.
- Ask if the youth is getting the support he/she needs, and what parents and healthcare providers can do to help "lessen the load."

You might want to speak with a pediatric health psychologist if the youth

- seems helpless or hopeless around illness management
- is distressed about the illness or its management
- seems sad more days than not

- shows changes in sleep, appetite, interest, or grades
- becomes withdrawn

TREATMENT AND CARE

Almost all families hit “bumps in the road” when living with a chronic illness. **Pediatric health psychologists** are experts in behavioral health, illness management, and adherence difficulties who use evidence-based treatment strategies to help children and their families cope with the difficulties of living with a chronic illness. Children, adolescents, and their families can be seen for a one-time consultation around illness management difficulties, brief behavioral therapies, or longer-term individual or family outpatient therapy as needed.

DIABETES

Having diabetes can take its toll, with the different aspects of self- management often feeling overwhelming. The responsibility for managing diabetes lies almost entirely in the hands of the person with this life-long condition.

People with different types of diabetes often have distinctive psychosocial needs. This article focusses on type 2 diabetes which is the most common form of the condition

IMPACT ON QUALITY OF LIFE

The personal costs for those with type 2 diabetes are many. It can impact on relationships, on working and social life, and on psychological well-being, with a consequent effect on overall quality of life.

Constant monitoring, following a healthy diet and finding time for exercise can all lead to improved mental and emotional health.

People with diabetes are up to three times more likely to report symptoms of depression and these can be debilitating. For type 2 diabetes, £1.8 billion of additional costs to the NHS can be attributed to poor mental health. However, less than 15% of people with diabetes have access to psychological support, in spite of the fact that psychological support improves health and cuts costs by 25%.

Poor mental and emotional well-being can lead to feeling less inclined to monitor blood glucose levels which then impact on self- management and diabetes control. People who feel depressed often feel lethargic and so are less likely to exercise. Diet is also very often affected with less healthy foods and more alcohol consumed. In addition, sleep is often affected (problems sleeping are one of the symptoms of depression), which can have a serious impact on overall quality of life.

SYMPTOMS OF DEPRESSION INCLUDE:

- Feeling sad/depressed mood Lack of interest/enjoyment in daily activities
- Inability to sleep
- Early waking
- Tiredness/lack of energy
- Loss of appetite
- Feelings of guilt/worthlessness
- Recurrent thoughts about death/suicide

EMOTIONAL DISTRESS

People with diabetes may also experience diabetes-related emotional distress and although there is a strong association between distress and depression, many people only report one or the other. Symptoms of diabetes-related distress include constantly worrying about blood glucose levels or the risk of getting diabetes complications, feeling angry about living with diabetes, and feeling guilty when going off track with managing diabetes self-care.

Distinguishing between symptoms of depression or diabetes-related distress through discussion with the diabetes nurse or GP, can help to decide what the most appropriate follow-up care should be offered.

For example a referral for counselling or other 'talking therapies', or diabetes education. The 'vicious cycle' (as described in **figure 1**) can be broken if appropriate support is given.

IMPORTANCE OF WELL-BEING

The importance of psychological and emotional well-being has now been recognised by not only Diabetes UK, but the National Institute for Health and Care Excellence (NICE) and there are guidelines for the management of diabetes and depression when they occur together.

NHS England has also recognised the importance of good mental health, advocating a holistic approach to care for people with diabetes which includes consideration of mental and emotional well-being as well as physical health (NHS England 2018). Diabetes UK has recommended that every person with diabetes should be in receipt of 15 healthcare essentials - including getting psychological and emotional support, and that receiving more integrated care would improve outcomes and quality of life. This, they say, would also subsequently reduce healthcare costs. A 'stepped care' approach to treating depression has been recommended by NICE which organises provision according to what is seen as the patient's specific needs.

IDENTIFYING THE SYMPTOMS

When someone goes to their GP to discuss feeling depressed or anxious, identification of symptoms starts with two questions:

1. During the last month, have you often been bothered by feeling down, depressed or hopeless?
2. During the last month, have you often been bothered by having little interest or pleasure in doing things?

If the answer is 'yes' to either of these questions, then further questions are asked in order to decide on the next step, and this is usually based on the severity of symptoms.

What support is available

A service available to all those identified as having depressive symptoms is the **Improving Access to Psychological Therapies** (IAPT) service. GPs usually make the referral, however self-referral is also an option. The IAPT service consists of talking therapies such as cognitive behavioural therapy.

NICE guidelines, based on existing evidence, also recommend the use of physical activity groups, motivational interviewing, and group or family therapy.

Some people prefer group rather than individual support as it can promote a sense of belonging, sharing stories and feeling less isolated.

A recent systematic review of studies investigating the impact of different treatments in people with diabetes found that both psychological and pharmacological interventions had a moderate effect on depressive symptoms, but had no impact on quality of life. NICE are currently updating their guidance and evaluating the evidence which can inform their recommendations.

Specific guidelines for supporting people with long-term conditions (including diabetes) have only very recently (April 2018) been developed and are yet to be widely available. At the same time, direct access to psychological support in primary or secondary diabetes clinics remains scarce.

There is often a lack of confidence in talking about depression or other psychological and emotional problems, on the part of both the GP and the person with diabetes.

The treatment of diabetes and its physiological consequences is often seen as the main priority of care, with psychological well-being further down the list, and worries about the most appropriate service to offer or receive are common.

DON'T BE AFRAID TO ASK FOR HELP

Asking for help with psychological problems can be difficult. Mental health problems still carry a stigma which can influence whether or not symptoms are expressed.

The language used within clinical settings can also influence the discussions. Using words such as 'adherence' or 'compliance' with treatment can have serious negative effects. Conversely, using non-discriminatory words can open up conversations and help identify the particular needs of the person with diabetes.

MORE SUPPORT IS NEEDED

In summary, diabetes can have a serious psychological and emotional impact, and can affect self-management as well as the individual's quality of life. A range of psychological problems can occur including depression, anxiety and diabetes-related distress.

Diabetes care service providers have acknowledged the extent of this problem and advocate a holistic approach to care which includes consideration of both physical and mental health.

It is recommended that psychological well-being is addressed in clinical consultations so that the most appropriate and person-centred care is provided, however there remains a shortage of specialist support.

Hypertension and Psychological Health

High blood pressure (HBP) is also known as hypertension. It is becoming too common in the 21st century despite the fact people are more health conscious []. Research proves healthy diet and exercise are effective in lowering HBP []. However, the diagnosis of hypertension is not decreasing. The concept of a healthy life style must be holistic and consider all factors that contribute to hypertension. This requires identifying the connection of the systolic (top number) and diastolic (bottom number) pressure to the cause when developing a holistic treatment plan for each patient. Perhaps the 21st century treatment for hypertension patients includes total mind, body and soul.

KNOW YOUR NUMBERS

High blood pressure is a silent killer because it leads to heart attacks and strokes. Hospitals and doctor's office staff measure each patient's blood pressure to break the silent attack of HBP []. A patient hears their numbers and information about a healthy blood pressure reading during their

visits to the doctor. A blood pressure (BP) reading has a top and bottom number referred as systolic and diastolic pressure []. In adults, a good systolic pressure is 120 mm Hg and a good diastolic pressure 80 mm Hg or less []. Each number is a snapshot of each patient's healthcare needs.

Doctors rely on the BP measurement to guide them in developing an appropriate treatment plan for each patient. The systolic pressure is the measurement of the arteries contractions as the heart is compressing and a high number indicates stress on the arteries []. The diastolic pressure is the resting pressure the measurement of blood flow between each heartbeat and a high number indicates an elevation in pulse rate []. The differences between systolic and diastolic pressure is simply physical cause and mental causes. Therefore, a patient should know their numbers to make adequate lifestyle changes to have a good BP reading.

HEALTHY LIFE STYLE CHANGES

High blood pressure shakes the core of all patients and they want to correct the problem by any means necessary. Doctors prescribe medication, a healthy diet, and exercise to their patients and many follow the doctor's orders []. This treatment is effective in many patients. However, there are some patients living a healthy lifestyle and still have a high diastolic pressure []. The question they ask in frustration is what is causing a high diastolic pressure despite a healthy life style of diet and exercise. This leads to the analysis of stress and physical health [].

Psychological health includes stress and anxieties. Therefore, it is necessary for a patient to seek the professional care of a psychiatrist to identify the stressors and develop a treatment plan []. There are also mechanics in psychiatric care because the endocrine system plays a vital role in releasing cortisol that affect the resting BP []. The 21st century is the era of holistic healthcare. Therefore, proper treatment for HBP should include psychiatric care. Medication is not the only treatment for HBP in regards to physical healthcare or psychological health care [].

A holistic care plan should use medications as the last option and if used it should be temporary as the patient makes their holistic care life style changes. A holistic plan of care for HBP is mind, body, and soul.

The mind, body, and soul treatment should align with the patient's beliefs. Many doctors and psychiatrist agree people become healthier when they reduce their exposure to a busy and noisy environment []. Therefore, spending time in nature enjoying its serene sounds is therapeutic and reduces the cortisol levels causing elevations in diastolic pressure that will increase with time of systolic pressure []. A healthy life style goes beyond diet and exercise. The mind, body, and soul are a lifelong preventive care plan and an effective treatment plan for HBP.

CONCLUSION

Patients' lifestyles have an impact on their BP. Doctors need to assess holistically the cause of patient's HBP to provide an appropriate treatment plan. In the 21st century, medication is not the first choice of treatment for HBP. Doctors encourage their patients to switch to a healthy diet, exercise, and relax []. However, relaxing is the most difficult part of the treatment plan for most patients who do not know the cause of their stress. In conclusion, physicians should recommend psychiatric care within their HBP treatment plan.

PSYCHOLOGICAL TREATMENTS FOR CORONARY HEART DISEASE

Coronary heart disease is a common term for the buildup of plaque in the heart's arteries that could lead to heart attack. But what about coronary artery disease? Is there a difference? The short answer is often no – health professionals frequently use the terms interchangeably. However, coronary heart disease, or CHD, is actually a result of coronary artery disease, or CAD, said Edward A. Fisher, M.D., Ph.D., M.P.H., an American Heart Association volunteer who is the Leon H. Charney Professor of Cardiovascular Medicine and also of the Marc and Ruti Bell Vascular Biology and Disease Program at the NYU School of Medicine.

With coronary artery disease, plaque first grows within the walls of the coronary arteries until the blood flow to the heart's muscle is limited. View an illustration of coronary arteries. This is also called ischemia. It may be chronic, narrowing of the coronary artery over time and limiting of the blood supply to part of the muscle. Or it can be acute, resulting from a sudden rupture of a plaque and formation of a thrombus or blood clot.

The traditional risk factors for coronary artery disease are high LDL cholesterol, low HDL cholesterol, high blood pressure, family history, diabetes, smoking, being post-menopausal for women and being older than 45 for men, according to Fisher. Obesity may also be a risk factor. "Coronary artery disease begins in childhood, so that by the teenage years, there is evidence that plaques that will stay with us for life are formed in most people," said Fisher, who is former editor of the American Heart Association journal, *ATVB*. "Preventive measures instituted early are thought to have greater lifetime benefits. Healthy lifestyles will delay the progression of CAD, and there is hope that CAD can be regressed before it causes CHD."

Living a healthy lifestyle that incorporates good nutrition, weight management and getting plenty of physical activity can play a big role in avoiding CAD.

"Coronary artery disease is preventable," agreed Johnny Lee, M.D., president of New York Heart Associates, and an American Heart Association volunteer. "Typical warning signs are chest pain, shortness of breath, palpitations and even fatigue.

PSYCHONEUROIMMUNOLOGY [CANCER, HIV/AIDS]

In a nutshell, PNI studies the connection between psychological processes and the nervous and immune systems of the body. A more detailed description of PNI was given in an interview with Dr. Robert Ader, a Distinguished University Professor at the University of Rochester School of Medicine and Dentistry, and one of the pioneers of this rapidly growing branch of research. It reads as follows:

"Psychoneuroimmunology refers, most simply, to the study of the interactions among behavioral, neural and endocrine (or neuroendocrine), and immunologic processes of adaptation. Its central premise is that homeostasis is an integrated process involving interactions among behavior and the nervous, endocrine, and immune systems."

History

The field grew from the work of Russian psychologist Ivan Pavlov and his classical conditioning model. Pavlov was able to condition dogs to salivate when they heard the ring of a bell by ringing a bell when they were given food. Eventually, they came to automatically associate the sound of the bell with the act of eating, so that when the food was no longer given, the sound of the bell would automatically cause them to salivate.

With PNI, Russian researchers conducted a series of experiments that showed that the body's other systems may be altered by conditioning as well. Although their research does not live up to today's rigorous standards, they were able to cause immunologic reactions in animals in much the same way that Pavlov created salivation in his dogs.

American researchers like Ader took the research further in the United States, and we now know for certain that immune responses can be enhanced or suppressed with a wide variety of conditioned cues. We also have a deeper understanding of the placebo effect— some researchers are beginning to believe that it might be a conditioned response as well.

PSYCHONEUROIMMUNOLOGY APPLICATIONS

Psychoneuroimmunology research sheds a great deal of light on many aspects of wellness and provides important research on stress. PNI studies have found many correlations between life events and health effects.

As PNI has gained greater acceptance in the scientific community, the finding that emotional states can affect immunity has been an important one, and research in this area helps us to gain a clearer understanding of stress and its effects on health. We are gaining a clearer understanding of the links between lifestyle and personality factors and immunity as research continues.

PSYCHONEUROIMMUNOLOGY: IMPLICATIONS FOR CANCER PROGRESSION AND TREATMENT

Research that has attempted to link psychosocial stressors with tumour development or progression has faced many obvious difficulties [1]. For example, stage of disease can have a profound effect on how patients feel, and cancer treatments such as chemotherapy and radiation are associated with a number of side-effects, including immunological alterations. One obvious area of interest is the possibility of influencing the course of cancer through behavioural interventions. Properly designed intervention studies provide a powerful tool for examining psychosocial factors. By random assignment of patients who have the same kind of stage of cancer to control and intervention conditions, researchers can assess psychological, immunological and disease changes. Following the initial demonstration of behaviourally mediated immune enhancement among older adults [21], a number of researchers have confirmed our finding that stress-reducing interventions can improve immune function [41].

One of the best studies in this area evaluated both the immediate and longer-term effects of a 6-week structured group intervention that consisted of health education, enhancement of problem-solving skills regarding diagnosis, stress management techniques such as relaxation, and psychological support [42, 43].

The patients had stage I or II malignant melanoma, and they had not received any treatment after surgical excision of the cancer. Noteworthy effects included reduced psychological distress and significant increases in the per cent of NK cells, as well as an increase in NK cell cytotoxicity, compared with controls.

A 6-year follow-up of these patients showed a trend towards greater recurrence, as well as a significantly higher mortality rate in the control group than in intervention patients. The group differences remained significant after adjusting for the size of the initial malignant melanoma

lesion, a key risk factor.

Consistent with results of the intervention study with melanoma patients, Spiegel and colleagues [44] showed that a year of weekly supportive group therapy sessions with self-hypnosis for pain was associated with extended survival time in women with metastatic breast cancer. It is not known if these data reflect immunological alterations that influenced the course of the cancer, and a number of other interpretations are plausible. As the authors note, patients in the intervention condition could have been more compliant with medical treatment, and/or they might have had better health behaviours such as exercise and diet. Such behavioural differences could contribute to the observed outcome.

receiving chemotherapy for ovarian cancer. Comparisons of data obtained at home several days before a scheduled treatment showed greater lymphocyte proliferation when compared with samples drawn in the hospital just prior to the treatment, even after controlling for increased activity. Consistent with the interpretation of the process as conditioned immune suppression, patients also demonstrate

Other researchers have linked stress to poorer immune function in cancer patients whose immune systems are already affected by disease. Among 116 women recently treated surgically for invasive breast cancer, greater stress (assessed via a self-reported measure of intrusive and avoidant thoughts and behaviours related to cancer) was associated with lower proliferative responses of PBLs to mitogens and to a monoclonal antibody against the T cell receptor [2]. Importantly, stress was also related to lower NK cell lysis, as well as diminished responsiveness of NK cells to rIFN- γ .

Earlier studies from Levy and Herberman and colleagues [4, 5] had shown that three variables accounted for 51% of variance in baseline NK cell activity among women with breast cancer: patient 'adjustment', lack of social support and fatigue/depressive symptoms. On reassessment of NK cell activity after 3 months, the investigators found that they could account for 30% of the variance on the basis of baseline NK cell activity, fatigue/depression and lack of social support. Most importantly, NK cell activity remained markedly lower in patients with positive nodes than in patients with negative nodes, that is average levels of NK cell activity were lower for patients with greater tumour burden. Even though neither radiation nor chemotherapy appeared to be related to subsequent NK cell activity, tumour burden was again associated with NK cell activity.

Additional data collected from breast cancer patients were consistent with evidence described earlier linking NK cell activity with social support in healthy individuals [46]. Among women with stage I or II cancer, higher NK cell activity was associated with the perception of high-quality emotional support from a spouse or significant other, perceived social support from the patient's physician, oestrogen receptor negative tumour status, having an excisional biopsy as surgical treatment, and actively seeking social support as a major coping strategy.

PSYCHONEUROIMMUNOLOGY AND HIV DISEASE PROGRESSION HIV / AIDS - A TABOO IN INDIAN SOCIETY

million Indians are infected with the HIV virus; about 220,000 of them are children, with the tendency rising. The lack of education and the lack of condoms mean that the virus is spreading faster and faster and more and more people are dying of AIDS - especially in the slums of the growing cities. More and more children are living there as so-called AIDS orphans, often being

infected with the virus as well. Among psychiatrists who treat patients with HIV/AIDS, the question of how psychosocial distress affects the progression of HIV disease is likely to arise. Even for healthy individuals, we are only beginning to clarify the complex pathways by which thoughts and emotions impact immune function. Due to the bidirectionality of the communications of the brain and the immune system, this is a complicated scenario. The fact that HIV alters the function of the immune system during the course of its progression creates greater confounds to the understanding of these systems. We will address the rationale that progression from HIV infection to AIDS may be modulated by psychosocial factors, discuss possible reasons for conflicting findings and posit some clinically relevant recommendations drawn from research findings.

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PSYCHOSOCIAL VARIABLES: MODULATORS OF HIV DISEASE PROGRESSION?

The progression of HIV disease is highly variable among individuals. Factors known to play a role in determining the rate of progression include the viral strain, genetic characteristics of the host immune system, co-infections with other pathogenic organisms (Zorilla et al., 1996) and health maintenance habits (e.g., diet, exercise, medical treatment). However, these factors do not fully explain the extreme degree of variability noted in the course of HIV disease (Cole and Kemeny, 1997).

Given that certain immune parameters are modulated by physiologic mediators of the stress response (i.e., catecholamines and glucocorticoid hormones), it would seem logical to investigate the role of stress and other psychosocial factors in the progression of HIV infection. In fact, changes in immune function and disease susceptibility have been well documented in healthy individuals during times of psychic distress (Ader et al., 1995; Miller et al., 1997), and studies over the past 15 years have shown significant correlations between psychosocial variables and HIV progression. However, there have also been a number of studies showing no such correlation.

Stressful Life Experiences. Studies examining stressful life events and HIV have shown interesting but conflicting results. For example, Rabkin et al. (1991) studied 124 HIV-positive men and found no association between clinician-rated anxiety and CD4+ lymphocyte counts at study entry and at six-month follow-up. However, Evans et al. (1995), performing a similar cross-sectional study of HIV-positive men, did show a significant correlation between increased frequency of negative life events over the six months prior to interview and decreased CD8+ cytotoxic T-cells. Evans et al. (1997) continued with a two-year prospective study and found that not only were severe life stressors predictive of greater declines in some lymphocyte populations (natural killer [NK] cells and CD8+ cytotoxic lymphocytes), but also that such stressors increased the rate of HIV progression to AIDS. The researchers emphasized that their results were noted only in those experiencing severe life stress, not stresses associated with everyday living. For every severe life stress reported, they found the risk of HIV disease progression to AIDS doubled. In their most recent work, these investigators followed 82 HIV-positive gay men at six-month intervals for up to 5.5 years. They found that more cumulative life stress and less cumulative social support doubled

or tripled the probability of progressing to AIDS (Leserman et al., 1999).

Depression. Studies examining the effect of depression on HIV progression have had variable results. For example, Rabkin et al. (1991) found no correlation in their cross-sectional study between depression and CD4+ lymphocyte count or stage of HIV illness; however, a relationship was found between clinician-rated depression and increased report of HIV-related symptoms. In 1993, Burack et al. reported findings of a five-year prospective cohort study that showed a significant correlation between depressive symptoms and more rapid decline in CD4+ lymphocyte counts, although not with increased HIV/AIDS-related morbidity or mortality. Conversely, in a similar eight-year study of 1,809 HIV-positive gay men, Lyketsos et al. (1993) found no significant relationship between depression and indicators of HIV disease progression or clinical outcome. Likewise, results from a seven-year prospective cohort study of 402 gay men showed that depressed affect was associated with a greater AIDS-related mortality rate, although no correlation was found for measures of CD4+ lymphocytes (Mayne et al., 1996). In a meta-analytic review, Zorilla et al. (1996) concluded that no significant correlations could be made between depressive symptoms and markers of HIV disease progression. There did seem to be a relationship between depression and increased reporting of HIV-related symptoms.

Social Interaction. It is widely accepted that social isolation is a significant risk factor for several disease entities and that significant interruptions in social relationships can have deleterious effects. With regard to HIV/AIDS, this is exemplified among studies examining the death of an intimate partner, an event generally associated with bereavement and social role disruption.

Kemeny et al. (1995) studied 39 HIV-positive gay men who had experienced the death of an intimate partner within the previous 13 months. Looking at various markers of HIV progression pre- and post-bereavement, they found significant increases in serum neopterin (a product of activated monocytes and a predictor of HIV disease progression) in the bereaved group. This finding was independent of ratings of depression, suggesting a qualitative difference between bereavement and depressive disorders. Another study unexpectedly found that greater self-reports of loneliness were associated with a slower decline in CD4+ lymphocytes over a three-year period, but not associated with time to AIDS diagnosis or AIDS-related death (Miller et al., 1997).

Similarly, in a study of socially and independently housed rhesus monkeys, Capatino and Lerche (1998) found that greater social disruption around the time of inoculation with simian immunodeficiency virus correlated with a significantly increased rate of mortality. The rate of mortality also increased after inoculation if the animal was placed in a novel social environment versus individual housing. These findings, although yielding a variability of findings, suggest that social interactions may play an increasingly important role in understanding HIV disease progression.

Coping Responses. There is growing evidence that one's coping style may modulate the progression of HIV infection. For example, in a study by Byrnes et al. (1998), an increased measure of pessimism was related to lower NK-cell cytotoxicity in a group of HIV-seropositive black women at risk for cervical cancer. Furthering this hypothesis, Cole et al. (1996) found in a nine-year study that the degree of "closetedness," or concealment of gay identity, was strongly correlated with more rapid decline of CD4+ lymphocytes, more rapid progression to AIDS diagnosis and more rapid time to AIDS-related mortality. These findings were unrelated to health practices, medical treatment or other demographic differences and suggest a relationship between disease progression, poor coping and the stress of concealing one's sexual orientation.

Examining specific coping styles in a group of 74 gay men diagnosed with AIDS, Reed et al. (1994) showed that higher measures of "realistic acceptance" of their AIDS diagnosis was a significant predictor of decreased survival time. They point out that, in the past, researchers have shown unrealistic optimism to be associated with better psychological adjustment and more active coping styles. Studies of the converse of this idea have found a "fighting spirit" to be associated with reduced progression to AIDS over a 12-month period (Solano et al., 1993). In an examination of the impact of perceived causes of events on HIV progression, Segerstrom et al. (1996) showed that the tendency to attribute negative events to the self was predictive of faster CD4+lymphocyte decline over the 18-month study period

FACTORS CONTRIBUTING TO THE DIFFERENCES OBSERVED IN STUDIES TO DATE

In attempting to compare the studies cited above, confounding elements include both the heterogeneity of the study populations and methodological differences among investigators. The majority of studies have been conducted among groups consisting primarily of Caucasian, well-educated, homosexual men living in metropolitan locations. However, even within this subgroup, there are variables that might skew study data (e.g., age group, unknown time since HIV infection, access to antiretroviral treatment and so forth).

A variety of methodological difficulties deserve mention. HIV/AIDS is an illness with an extraordinarily long latency period, so following patients even for several years may yield no substantive change in disease status. Putative immunologic changes brought about by psychosocial factors tend to be small, necessitating larger samples to reveal significant findings (Cole et al., 1997). Many psychiatric disorders tend to be recurring, time-limited entities, and our measurement techniques for these typically yield only a cross-sectional glimpse of mental health at a given time. These factors could preclude significant findings in a disease like HIV/AIDS, which has a lengthy asymptomatic phase (Zorilla et al., 1996).

Currently, several known laboratory findings correlate with HIV progression, but their predictive value is questionable. The most common marker, the CD4+ lymphocyte, is predictive of increased risk for opportunistic infections once it drops below a critical level. Another promising marker is the plasma viral load. However, with the advent of newer antiretroviral therapies, CD4+ lymphocyte levels can rise markedly and viral load can become undetectable for years

CLINICAL RECOMMENDATIONS AND APPLICATIONS: LENGTHIER STUDIES ARE NEEDED

Many studies give us hope that psychosocial interventions can not only improve our patients' quality of life, but also improve their physical health. For example, a study of 10 HIV-positive men by Taylor (1995), showed that behavioral stress management over a 20-week period significantly slowed the rate of CD4+ lymphocyte decline. These results are tempered by conflicting findings such as those of Mulder et al. (1995). Working with 26 asymptomatic, HIV-positive men in either cognitive-behavioral group therapy or experiential group therapy, these researchers found no significant differences in CD4+ lymphocyte changes between group members and controls over a 24-month period. Lengthier studies of larger populations are clearly needed to elucidate further findings and to translate them from laboratory data into real-world scenarios.

Exercise training has been studied among several HIV-positive cohorts, revealing numerous psychological benefits including decreases in anxiety and depression and increases in active, positive coping styles. In a review of pertinent literature, LaPerriere et al. (1997) concluded that a

typical regimen of aerobic exercise can result in increases in CD4+ lymphocyte counts in all HIV-positive patients, except those with AIDS. However, even among AIDS patients, the CD4+ lymphocyte counts remained stable over an 18-month study (whereas control patients' levels continued to decline).

The impact of HIV on neural tissue remains questionable. There is evidence, at least in the case of depression, that HIV-positive individuals respond to antidepressant therapy at rates similar to seronegative controls. The side-effect profiles of these medications also seem to differ minimally based on HIV status (Rabkin et al., 1994).

A significant finding about HIV and depression in the meta-analysis by Zorilla and colleagues (1996) was that depression was associated with increased reporting of HIV physical symptoms, regardless of objective markers of physical disease. Depressed HIV-positive individuals may have a more painful experience of HIV illness, regardless of objective physical signs and markers. Also, alleviating depression in some cases may facilitate compliance with medication regimens and medical follow-up, improve self-care, and decrease self-destructive behavior—all variables associated with diminished morbidity and mortality (Stober et al., 1997).

Overall, evidence remains inconclusive regarding the role of psychosocial factors in HIV disease progression, as well as the long-term effectiveness of interventions directed at such factors. However, it is certain that psychiatric disorders and social stressors occur frequently during the course of HIV disease. While it is unclear whether specific psychiatric and psychosocial interventions will extend life or improve physical health among HIV/AIDS patients, we do know definitively that treatment can alleviate psychiatric disorders, relieve distress, and improve quality of life and such critical variables as treatment adherence.

With more HIV-positive individuals being seen in general psychiatric practice, one should not underestimate the positive effects of comprehensive psychiatric care

WHAT IS PSYCHOLOGY AND TECHNOLOGY INTERFACE: DIGITAL LEARNING; DIGITAL ETIQUETTE: CYBER BULLYING; CYBER PORNOGRAPHY: CONSUMPTION, IMPLICATIONS; PARENTAL MEDIATION OF DIGITAL USAGE?

PSYCHOLOGY AND TECHNOLOGY INTERFACE:

Human-computer interaction (HCI) is the study of how people interact with computing technology. One major area of work in the field focuses on the design of computer systems. The goal is to produce software and hardware that is useful, usable, and aesthetically pleasing.

A closely aligned area is the evaluation of systems in use. This is of course related to design, because to know if a design is useful or usable requires observing it in use. However, this also extends to the study of the larger social consequences of use. Increasingly, evaluation takes place at multiple levels of analysis: the individual, the group, the organization, and the industry or societal sector.

The methodological and conceptual issues at these different levels of evaluation are quite different. Psychologists are typically most interested in the smaller levels of aggregation, though Landauer (1995) attempted to provide a largely psychological account of the “productivity paradox,” a phenomenon first identified by economists who found a disappointing lack of

correlation between the amount of money invested in information technology and changes in industry productivity measures

This chapter updates and expands the last review of HCI in the Annual Review of Psychology (Carroll 1997). There has been steady growth in the field since then, and in our brief chapter we can only highlight some of the most significant changes. We also give explicit attention to the emergence of research at the group and organizational level, often referred to as computer-supported cooperative work or CSCW.

The field of HCI is fundamentally interdisciplinary. The fields of cognitive, social, and organizational psychology are all important to research in the area, but other social sciences such as sociology and anthropology have played key roles, as have such related fields as communication, management, operations research, and ergonomics.

Also, a variety of technical specialties from computer science are important. Research in HCI requires literacy in the related fields and often involves multidisciplinary collaboration. Some think of HCI as a purely applied field.

However, being applied does not mean lacking in relevance to basic science. Stokes (1997) argued that the quest for fundamental understanding and considerations of use are two separate dimensions of a 2×2 table rather than opposite ends of a continuum. He used Pasteur as an example of research that sought both fundamental understanding and practical solutions. Whereas some research in HCI is close to purely applied, as we hope to show in this review, much of it falls in Pasteur's quadrant.

THE SCIENCE OF HUMAN COMPUTER INTERACTION

Theoretical advances in HCI are proceeding on a number of different fronts. Modeling of the integration of perceptual-cognitive motor processes to illuminate the moment-by-moment behavior people exhibit with computers has become more detailed. At the more social level, there is work on distributed cognition, focusing on the interplay of people with their teammates and the artifacts of their interaction.

Another class of tasks, that of information retrieval, is receiving attention from HCI researchers. What we do not have yet is a detailed model of social interaction or of some of the larger issues of adoption of innovation. There is significant work to be done to understand what might be unique about the adoption of computation as an innovation, because computational artifacts can be designed in so many different ways.

Human Computer Interaction Work on Information Retrieval Whereas most of the theory and applications in HCI of the 1980s and early 1990s focused on computationally supported office applications such as word processors and spreadsheets, one of the major theoretical advances of the late 1990s came in an examination of information-retrieval behavior. Spurred by the advent of the World Wide Web and ubiquitous "surfing" behavior, Pirolli & Card (1999) investigated how people decide to continue in a line of searches and when to jump to a different source or search string.

To model this behavior they drew on foraging theory from biology. They saw the analogy between the movement of animals from one food source to another (a "patch") and people's movement

from one information source to another.

They modeled the moment-by-moment decisions people make in their assessment of the value of what they see in search results to predict when they would pop back up to a high level change in a search string or a completely different source such as stopping searching the web and asking a reference librarian. This work also highlighted the importance of the display of the search results in the way it gives clues (“scents”) as to whether further selection of an item is likely to be valuable (“to bear fruit”). So, for example, if a Google search returns only headers or urls, it has a less informative “scent” than a display of the sentence fragments that surround the words that match the search string.

These bits of information give the user clues as to whether the selection of that item is likely to be useful. The Card and Pirolli information-foraging work is remarkable not only in its novelty of task and approach, but in the variety of methods they bring to play in their work. They motivate the investigation with some descriptions of real people searching for information—a team of MBAs doing an industry analysis and a consultant writing his monthly report on a topic. From phenomena gleaned from these cases, they worked with mathematical foraging theory, applying various concepts and equations to information rather than food-seeking behavior. Of particular relevance here were calculations on the time a person would spend in a fruitful region of information before moving on to another and the factors that drove the decision to move. They then moved to modeling the moment-by-moment behavior of people conducting their search with an ACT-IF model (the ACT-R model applied to information foraging, IF).

The mathematical analyses show aggregate behavioral trends (e.g., average time to linger as a function of richness of the scent), whereas the ACT-IF model allowed them to explore various mechanisms that might account for this behavior. They concluded with an empirical laboratory study of people making such switching decisions in a particular information-retrieval system called the “Scatter/Gather” interface. They made very specific predictions of when someone would stop searching a source (when the average value of a found item dropped below an estimated middle point). They also encouraged designs to give “scent,” hints as to the ultimate value of continuing searching on a particular path, such as meaningful labels and revealing search results.

USER INTERFACE DEVELOPMENTS

As computing technology changes, new user interface challenges arise. For instance, in the early days of personal computing screen displays were mostly command lines in green or yellow on a black background. Editing a manuscript included placing explicit formatting characters in the text. With the emergence of graphical user interfaces (GUIs), whole new classes of issues emerged, as well as new opportunities for tapping into key cognitive and perceptual processes. Much of the design of early GUIs was influenced by psychological research (e.g., Johnson et al. 1989). Such systems have been around long enough that they have achieved some level of stability in design, even across different hardware and software platforms.

Now all kinds of new situations are emerging that are challenges to human-computer interaction specialists. We briefly describe some examples of these and indicate the character of some of the psychological issues involved. As applications move from the desktop to more mobile, immersive environments and to a wider set of users, there remain a number of challenges for basic psychology. How do people understand aspects of the digital world as it is embodied in these various devices? How do we capitalize on the strengths of each human, coupling them with

assistance from computing, to bring about the most in a productive, satisfying life. Mobile Devices In the past decade a wide variety of small mobile devices have appeared. The most common are what are called personal digital assistants or PDAs. These are small handheld devices that have increasingly sophisticated computational capabilities.

The user interface challenges are daunting. These devices typically have small screens, and interactions are with a stylus and a small set of buttons. Some models have optional folding keyboards that allow for more traditional interactions. Despite these user interface challenges, such devices have a number of very useful functions and are very popular. Combinations of mobile devices, such as the merging of PDAs and cell phones, are just appearing. One specialized user interface issue is how to integrate such mobile devices with more traditional computing. For instance, Milewski & Smith (2000) developed a digital address book with location sensors that could be accessed from a regular workstation or from a PDA and that provided information about the availability of others that could be used to coordinate phone calls regardless of where the participants might be. The interface had to be adapted to the capabilities of each device in a way that users found intuitive and natural.

DIGITAL TECHNOLOGY ON LEARNING

Over our first few blogs, let's take a look at the effects of digital technology on learning. We'll begin in the classroom.

Does technology interfere with classroom learning? Yes

According to one teacher survey regarding the problem with technology in schools (Washington Post 2013):

- Nearly 90% of teachers felt technology has created a distracted generation with short attention spans.
- 60% felt it hindered writing and face-to-face communication; i.e., communication with full sentences and longer has lost out to short snippets in writing or media.
- Almost 50% felt it hurt critical thinking and homework ability.
- 76% felt students were conditioned to find quick answers.

In short, technology is changing the way our students learn, and not always for the better.

In another survey, university students were asked how often they use their cell phones while in class for non-class related uses (Baron 2015). The average college student reported such use 11 times daily. 15% of students used their cell more than thirty times during class. All of this activity comes at a price in learning. In one study, students who sent text messages while watching a lecture had exam scores 19% below those who did not text (Thompson 2014).

When students were asked themselves about texting during class time, the following percent of them agreed or strongly agreed:

- 77% felt that receiving text messages hurts my ability to learn during lecture. 72 % felt that sending text messages hurts my ability to learn during lecture
- 37% felt that they get distracted when someone else receives a text during class.
- 31% felt that they get distracted when someone else sends a text during class.

Thus, students recognize that texting in school not only interferes with their own learning, but also interferes with other student's attention—yet 49% of them still felt it was okay to text during class (Rosen, 2012).

Not surprisingly, allowing web access (i.e., not just texting access) to students during a lecture doesn't fare well, either. One group of students was allowed to surf the web during class, and the other kept their laptop closed. Students did indeed look at lecture related sites, but also went shopping, watched videos and caught up on e-mail. Even those students who surfed only on topics related to the lecture showed significantly worse memory of the lecture's content than those who kept their laptop closed (Carr 2011).

Yet, multiple studies reveal that the majority of students say that they use their electronic devices during class to text, browse, or consume media. The results of these studies agree with my own informal survey of my patients who, when asked, almost uniformly say that students are using the classroom laptops/iPads for non-educational activities. Even those who have monitored or limited Internet access still use their laptops for offline gaming. If an adult comes around, they simply hit a button which switches the screen to a legitimate activity. The CD (remember those?) version of MAD magazine even contains a "panic button" which, if pressed when an adult checks in, pulls up a Word document that reads something to the effect that, "I can't believe my parents fell for this again." School systems that are switching to all digital experiences for their students must ask themselves if the advantages are worth the distractions.

Digital etiquette, or netiquette as it is sometimes referred to, is a basic set of rules pertaining to behaviour that needs to be followed to ensure the Internet is better for all users. Basically it means "the use of good manners in online communication such as e-mail, forums, blogs, and social networking sites." Digital etiquette, or netiquette as it is sometimes referred to, is a basic set of rules pertaining to behaviour that needs to be followed to ensure the Internet is better for all users. Basically it means "the use of good manners in online communication such as e-mail, forums, blogs, and social networking sites" (Digital Citizenship, Auburn University. n.d.).

Etiquette, the word, means "The forms required by good breeding or prescribed by authority in social or official life". The origins of the word stem from the French word "ticket"; if you knew the etiquette for the group or society you would have a 'ticket' to gain access (Shea, V. 2004).

Importance of Netiquette

So why is netiquette so important? When we communicate face-to-face, it is important to note that 55% of the communication is made up of body language, 38% is the tone of voice, with the remaining 7% being the actual words (Psychology Today (Thompson, J. 2011)). When communicating on a phone we lose the body language component but the tone is still there to support the message.

However, communicating online, or in the written form, we lost 93% of the communication – the words become the sole mechanism for communication! As a result misunderstandings occur without these non-verbal cues.

So how do we provide these non-verbal cues in digital communication? Informally we use emoticons to aid the message, but formally this is a lot harder. Most formal communication occurs within a business context, so netiquette becomes vital in our communication as businesses rely heavily on building and maintaining relationships.

Netiquette is even more important when we consider the longevity and the reach of the communication. The lack of netiquette can cause substantial problems in the workplace and

schooling.

Although there has been a reduction in poor netiquette, it is still an issue that has ramifications beyond socially acceptable norms. Etiquette and Business. Business is about building relationships, which at times can take years. Creating the rapport is incredibly important in establishing trust, authenticity and credibility. Any disregard for netiquette can break this down with a single email, post or online comment. It is key for businesses to focus on the digital skills of their employees; moreover the focus should be on communication with a nuance on digital communication.

Etiquette and Society

We know that the socio-cultural environment has the deepest, strongest, and perhaps most prevailing effect on social behaviour. In fact etiquette are societal norms, therefore netiquette would be the rules society dictates we utilise when we are online.

The Online Disinhibition Effect

People disclose or act out more frequently, at times more intensely, when they are online. More so than when they are off-line. Because of this loss of inhibition, users show tendencies, such as being more affectionate, more open, and less guarded, in an attempt to achieve emotional well being (Suler, 2004 Role of Rules and Policy We communicate daily, be it in a social, business or academic context, and the way in which we engage will differ. Without any form of 'guidelines' or rather rules and policy on conduct, our interactions will degenerate and result in negative consequences. (N)Etiquette is all about the code of behaviour established for communicating and behaving

Electronic Standards of Conduct

Electronic Standards of Conduct is a set of standards on social, environmental and ethical issues within the context it is provided. Most companies have such standards, often referred to as Acceptable Use Policy (AUP). This is often used as a guideline for employees and users, but also in terms of managing staff. Given that employees represent the company, even outside of their normal working hours, therefore some standards need to be in place.

Employees in breach of these standards may find themselves without a job, as it is seen as part of their contract with the company.

Virginia Shea's Netiquette Guidelines

These guidelines will differ, in terms of the context and the medium available. However, there are some core principles that we need to be aware of and adhere to. According to Shea (1994), an academic who has been dubbed the 'network manners guru', these guidelines are:

1. Remember the Human Never forget that the person reading your communication is actually a person with feelings and can get hurt. Essentially never say anything online that wouldn't say to your reader's face. Adhere to the same standards of behaviour online that you follow in real life. Be ethical in your engagement and know that breaking the law is bad netiquette
2. Know where you are in cyberspace The netiquette required will differ from domain to domain. If you are in a forum of experts, your netiquette should reflect respect. Whereas if you are in a chat room with a group of friends (you know in real life) then the netiquette will differ!
3. Respect other people's time and bandwidth When sharing files or documents, bear in mind the audience's bandwidth. Furthermore, make sure you read the FAQs first before asking mundane questions where the answers already exist. If you disagree with a group's discussion, don't

- waste their (or your) time by telling them how stupid they are: Just stay away.
4. Make yourself look good online Check grammar and spelling before you post. Most people judge others' intelligence based on the use of grammar and spelling. Only post on things you know about, it is not worth it to look like the fool.
 5. Share expert knowledge Offer answers and help others where you can
 7. Help keep flame wars under control Don't respond to flame-bait, don't post spelling or grammar flames, and apologise if you have done so or perpetuated a flame-war.
 8. Respect other people's privacy Don't give out other people's details, online or offline.
 9. Don't abuse your power The more power you have, the more important it is how you use it.
 10. Be forgiving of other people's mistakes We all were once a newb (and no we don't mean noob – those who know little and have no will to learn any more).

Bad Etiquette Examples

- Although these are not the only examples of bad netiquette these examples may give an idea of the things that are taboo: Don't type in CAPS – it is considered shouting
- Don't spam
- Don't use offensive language
- Don't steal other people's identity
- Don't distribute illegal material
- Don't flood
- Don't expect a response straight away
- Don't broadcast only; engage with others Don't 'reply-all' for a personal conversation Don't ask a question that can be found on the site or on Google" (Melin, 2013).

CYBERBULLYING FROM A PSYCHOLOGICAL PERSPECTIVE

The stereotype bully used to be the big kid in the school taking smaller children's dinner money or the colossal 'Miss Trunchball' terrorizing the tiny kids in Roald Dahl's book, 'Matilda'. In recent years the definition of bullying has extended beyond the school playground and we are more likely to recognize that the capacity to bully others is not limited to those with large bodies.

Over the past twenty years, as the internet and mobile phones have become embedded in our lives, we have heard about children and adults who have been targeted by bullies online. We seem to have improved our understanding of how bullies operate and we are more likely to believe the stories of those who have been bullied but we do not seem to have made much progress in preventing bullying or dealing with bullies.

For those of us who are less familiar with social media or do not feel confident in understanding the online context it might feel overwhelming and confusing if, either professionally or personally someone seeks our support or advice on addressing cyberbullying. I hope that the following information serves as a way of familiarizing oneself with some of the issues that might come up and suggest ways we can support people who have experienced cyberbullying.

What is cyberbullying?

'Cyberbullying' is a range of behaviours that people use to intimidate, shame or alienate another person online. Cyberbullying includes, but is not limited to, using offensive or dehumanizing language against someone; blackmail; 'outing' someone; threatening physical violence. In the same way that bullies often try to isolate someone 'in real life' they might also try to rally others to isolate someone else in the online context and/or in 'real life'.

What distinguishes cyberbullying from face to face bullying?

In the past few years there have been several cases of high profile people being bullied online. Most notably, Twitter, has enabled people to communicate with famous people in a way that wasn't previously possible and there are many people who have used this opportunity to express their racist, misogynistic and homophobic beliefs directly at their target.

One of the most striking aspects of these cases is the way that a 'pack' descends onto the scene and, also, how online platforms appear to be ill-equipped to deal with bullying and so people are sometimes 'bullied off' the platform.

The internet also enables a person to bully strangers, without geographical limitations, via social media, comment sections, dating apps etc. in a way that wouldn't have been possible previously. Additionally, a cyberbully can send abusive messages at any moment, not limited by the time restrictions of face to face contact.

Young people who have experienced cyberbullying describe a feeling of not being able to get away from it; that there is no respite. Older people might think that the solution is to disconnect from the online spaces where the bully can send messages or, perhaps, even to disconnect from social media altogether but it seems that young people are usually unwilling to sacrifice the more positive interactions they have in those online contexts in order to avoid the bully. Young people's online lives are often so embedded in their day to day lives telling them to quit social media is like telling them to stop going to the town centre so they can avoid the bully.

WHERE DOES CYBERBULLYING HAPPEN?

The most popular online social media platforms are Facebook, Instagram, Twitter, Snapchat and Tumblr and the most popular mobile phone applications for sending messages and photos are WhatsApp and SnapChat.

However, there are always new platforms coming and going and it's difficult to keep up with the trends in the lesser known platforms and to understand what they entail. The NSPCC website 'net aware' (link in references section below) is very helpful as it provides descriptions of different apps and social media platforms and gives advice on how to use them as safely as is possible.

When we're thinking about how to help or protect others from cyberbullying it's important to be aware that platforms such as Netflix (TV and film streaming service), videogames and music apps (e.g Spotify) that are not necessarily marketed as 'social media' or communication apps also provide the possibility to send message (and therefore provide another platform for bullies to send abusive messages).

AT WHAT AGE DOES CYBERBULLYING BEGIN?

Most of us will have observed, experienced or participated in bullying at primary school, so we know that primary school aged children do have the capacity to bully others face to face. It would therefore follow that primary school aged children who are using social media are not immune from bullying others or being bullied by others online.

Since the emergence of smart phones around 2010 it seems that more and more parents use mobile phones and/or portable devices to entertain or occupy babies and small children. Following

on from this, it seems plausible that a child's first negative online experience must be becoming progressively younger and that it's not unrealistic that their first experience of cyber bullying (whether it is observing, participating or being on the receiving end) could happen whilst they are still attending primary school.

THE PROFILE OF THE CYBERBULLY

Most adults would admit to having engaged in some form of bullying, no matter how briefly, at some point in our lives. And, like in most other areas of human behaviour, it seems unlikely that a person who engages in protracted bullying is categorically different from the rest of us but, rather, is more likely to be at the more severe end of personality traits that we all have: jealousy, obsessionality and lacking empathy (callousness).

As is the same with the face to face context, cyber bullying can provide a way for individuals to project their own feelings of distress into another person. It also seems plausible that a nasty message provides the sender with some temporary excitement or temporarily relieves some feelings of frustration. By sending nasty messages under the cloak of the internet (not necessarily anonymously) the sender is protected from any possible physical backlash from the receiver. However, they have also left an 'electronic trail' that could land them in trouble with their employer, their school, the online platform, or the police. Perhaps this is one of the reasons for the 'pack' behaviour mentioned previously: that bullies have a feeling of 'safety in numbers' and if the pack unleash their anger and frustration on particular individuals they feel that they are less likely to be sanctioned than if they are the sole bully.

A long standing explanation of the behaviour of bullies in face to face contexts is that they are people who are unable to form a positive connection with others and so a negative, destructive communication is more rewarding for them than to be alone or isolated. It seems plausible that this explanation also holds up for cyberbullies.

DRAWING ON PROFESSOR PAUL GILBERT'S THEORIES TO UNDERSTAND CYBERBULLYING

Professor Gilbert's psychological theories have long since drawn on broader social and evolutionary theories to make sense of individual feelings and behaviours. It is useful to be reminded that, as human beings, we are inherently social creatures. It is also helpful to hold in mind that the vast part of our physical and mental evolution occurred during the hundreds of thousands of years prior to the first civilisations; the internet era of the last twenty years is less than a blink of an eye in the big picture of human evolution. Which leaves the question of how well our minds are equipped and/or able to adapt to the rapid technological changes that are happening in our lives. Gilbert (2006) outlines our most basic behaviour displays and defences: courting, sharing, fight, flight, submission and freezing and our basic cognitive competencies: Theory of Mind; symbolic representations of ourselves and others; and meta cognitions and meta presentations. Perhaps one of the reasons why smart phones have become so pervasive is because they draw on so many of our most primitive cognitive and physical capacities.

It seems that many people are emotionally attached to their mobile phones in a more profound way than other electronic devices. This emotional attachment makes sense if the phone is recognised as a device that enables us to meet some of our most primitive needs.

Negotiating our social ranking is the one of the primitive activities that we use mobile phones for.

I remember in 1997 when I was a waitress in Pizza Hut in Manchester and customers first began to put their mobile phones on the tables; when just having a mobile phone was a way to increase social ranking. Now, mobile phones are ubiquitous but provide a way of accessing higher social rank through the popularity or cleverness of the images or information that we share. And for those who have gained social rank via socialmedia, or aspire to gain social rank via social media, it is not surprising that they will try to resist losing that rank if the bullies come along.

It's also helpful to be reminded of Gilbert and McGuire's (1998) work on aggressive and attractive strategies for gaining social rank as, again, the very primitive nature of these behaviours fits well in the context of understanding online behaviour. I think this work helps to explain the polarisation that appears to be endemic to Twitter in particular. Gilbert and McGuire outline how, to gain and maintain social rank, people use either 'attractive' strategies such as showing talent and competence in order to be valued and stimulate positive affect in others or they use 'aggressive' strategies such as authoritarianism, coercion or threats in order to make others fearful, inhibited or submissive.

So far, we have outlined several motivations for why people bully others online: feeling emboldened to express their offensive beliefs because others are doing so; projection of their own unwanted, unpleasant feelings into another person; personality traits on the severe end of the dimensions of jealousy, obsessionality and/or lack of empathy (callousness); attempts to use aggressive tactics to increase their social rank and/or inhibit someone else's social rank.

Supporting those who have been shamed online by bullies

Bullies attempt to shame others in a range of ways; from mocking them to sharing their videos or photos, particularly those of a sensitive nature. In face to face contexts this is bad enough but the permanence and the possibility of wide distribution online make things even worse.

One way of partly relieving shameful feelings is when we meet others who are willing or able to empathise with us. At the end of the Netflix documentary 'Audrie and Daisy' (2016) Daisy meets other teenage girls who were also bullied (online and face to face) by their peers after reporting sexual assaults to the police and the meeting appears to go some way towards relieving feelings of shame for those concerned. Professor Gilbert's book, 'The Compassionate Mind' (2009) is a useful resource for developing self-compassion as an antidote to feelings of shame.

Where bullies have distributed videos or images that are of a sexual nature and there is recourse to legal avenues it seems plausible that obtaining justice through the legal system might help to relieve some of the feelings of shame.

Supporting those who have been frightened by bullies online

When bullies are making threats or have made threats the first step should always be to ensure the person's safety by contacting the police.

Paladin is a UK service offering advice and support to people who are being stalked and also provides advice to professionals who are working with people who are being stalked.

It is also important to contact the support services for the online platforms where the bullying has taken place to ensure that the intimidation is prevented from reoccurring. Each social media platform has its own code of conduct and sanctions if the rules are broken.

In terms of providing emotional support to those who have felt frightened by online bullies the most important priority is to ensure that the person is now safe. If we can be sure the person is now physically safe only then can we support them in processing their feelings of anxiety about what happened in the past.

It is important to take people's emotional reactions to cyber bullying as seriously as we would if the bullying was face to face. It might be that the person continues to feel anxious because they are focused on thoughts of 'what could've happened', 'what could've gone wrong'. In these cases we should validate the person's worries but help them trace the actual chain of events and to focus on the actual outcomes rather than the 'what could have been's'.

THE CONSEQUENCES OF HAVING BEEN BULLIED

I have worked with people in their eighties who continue to experience distressing memories of being bullied in school; for others, maybe the horrible memories do diminish but in every case we should always take the person's experience of being bullied seriously and listen carefully to the details of the particular situation so that we can offer the best and most appropriate support possible.

I have worked with families who have taken their child out of school due to bullying only for it to happen in the new school. In these cases it must be very difficult for the child not to believe that the problem is with them when, in reality, starting a new school is likely to be a moment of vulnerability that bullies are vigilant to. It seems important to ensure that if the decision to change schools is made that the child receives proper support on how to approach starting their new school in light of their previous experiences.

From working across the lifespan we know that people who have experienced face to face bullying continue to experience the consequences for many years after: finding it difficult to trust others, internalising the bully's voice and so on. As online bullying is a relatively new phenomenon only time will tell if the consequences are as longstanding. What we do know is that people who have been bullied in either of these contexts have taken their own lives indicating that the short term impact of cyber bullying can be as devastating as face to face bullying.

CONCLUSION

I've met several young people who have been worried that if they tell someone about the bullying that they're experiencing that 'it will make things worse'. Of course, this plays directly into the hands of the bully who seeks to isolate the person that they're bullying. By listening very carefully, paying attention to the fine details of the situation and providing emotional support to the young person we can work out the most appropriate solutions together.

Schools, social media platforms, families and any other place where people are interacting are vulnerable to the possibility of bullying taking place. In terms of supporting people (of all ages) who are targeted by cyber bullies, I think we should have at least a basic understanding of social media in order to provide appropriate support and advice. As in any other form of tyranny the minority of people who engage in cyber bullying depend on the fragmentation, impassivity and indifference of the wider society. By having a better understanding of social media, even if we do not have a personal interest in it ourselves, we will be better able to provide appropriate support and advice to those who are targeted by cyber bullies.

PORNOGRAPHY

A study of Internet pornography users suggests a person's own feeling of being addicted to online pornography drives mental health distress, not the pornography itself.

Researcher Joshua Grubbs, a doctoral candidate at Case Western Reserve University's Department of Psychological Sciences, said the finding adds a fresh perspective to commonly held concerns that Internet pornography can be a threat to mental health. The research, funded by the John Templeton Foundation, suggests that feeling addicted to Internet pornography is associated with depression, anger, and anxiety, but that actual use of pornography is not.

Grubbs is part of a research team that did a study titled "Perceived Addiction to Internet Pornography and Psychological Distress: Examining Relationships Concurrently and Over Time." The article is now published in *Psychology of Addictive Behaviors*, a journal of the American Psychological Association.

With Grubbs on the research team are Nicholas Stauner and Julie J. Exline, also of Case Western Reserve University; Kenneth I. Pargament of Bowling Green State University, and Matthew J. Lindberg of Youngstown State University.

Grubbs said Internet pornography viewing online is increasingly common, more among adult males than adult females. The study did not involve minors. Data used for the study came from research participants who were granted anonymity. These participants were assigned numerical identities for confidentiality and were paid for their participation. A second group involved psychology undergraduate students at three separate universities in the United States. Those students received course credit for participation. The research team used these two cross-sectional samples and a 1-year longitudinal study.

"Collectively, these findings suggest that perceived addiction to Internet pornography, but not pornography use itself, is related to psychological distress, which runs counter to the narrative that many people have put forth. It doesn't seem to be the pornography itself that is causing folks problems, it's how they feel about it," Grubbs said. Prior research by Grubbs and Exline has shown that perceived addiction to Internet pornography is partially driven by religious beliefs and moral disapproval of pornography.

IMPLICATIONS OF PSYCHOLOGY

Early Years STEM Learning Emerging from the literature review, further research is likely to illuminate how different individuals respond to instruction during early years education. The literature review reveals the fact that children start school with potentially very different levels of ability in some key areas that predict achievement in STEM subjects (including linguistic ability, quantitative ability, spatial ability and executive function). We are beginning to understand the way in which these skills combine to provide a foundation for STEM Learning, but in the future education is likely to benefit from: Improved methods of identifying the individual needs of children. Tests for various abilities are already used in research, but these are not always convenient or appropriate to apply in classroom practice.

This can be due to the time required to administer the tests, or to the need to administer them on a 1-to-1 basis. In the future, novel methods of measuring precursor abilities in classroom contexts,

with good levels of reliability and validity, will provide schools and teachers with new and more effective methods by which to target differentiated support and instruction. Improved methods of supporting children with low levels of precursor skills and abilities. Given that these skills and abilities are strong predictors of future learning, it may be important that children identified as having low levels of particular abilities on entering formal education are supported in ways that focus on these abilities. Research cited in the literature review indicates some limited success has already been demonstrated in raising levels of these precursor skills, but further pursuit of research in this area will help identify more effective interventions for children with different levels of need and at different ages. Some research has already taken seriously the need to focus on individual differences in response to STEM instruction, and to explore interventions that can address diverse needs for support. An excellent example of this approach is Dowker's (2005a; 2005b) componential model of arithmetic, that led to the development of the Catch-Up Numeracy programme. This research was not included in the literature review as its theoretical basis appears more educational than psychological or neuroscientific. However it provides clear evidence that a focus on individual differences in children's learning can lead to improved outcomes. In the next 20 years, improved understanding of discrete predictors of achievement in STEM (e.g. spatial ability, quantitative ability, linguistic ability) and, perhaps more importantly, the ways in which they interact, will stimulate new insights into ways in which curriculum material can best be introduced, and new insights into ways in which material can be differentiated according to children's abilities.

PARENTAL MEDIATION OF DIGITAL USAGE

Most children of the current generation grow up in media-rich homes. Media are present in the majority of households and new technologies, such as tablets and smartphones, have emerged in Euro-American contexts. As indicated in a systematic review of European research (Ólafsson, Livingstone, & Haddon, 2013), most research on children and digital media has focused on children aged 9 and above. However, due to the recent, rapid adoption of touch-screen devices most children use digital media and the internet at an earlier age (Findahl, 2013). Even children aged 3-4 use electronic gadgets and are avid users of technology (Ofcom, 2014). However, children are substantially influenced by their parents and their daily practices. Parental mediation is defined as the parental management of the relationship between children and media, including simple restrictions, conversational and interpretive strategies, and parental monitoring activities (Livingstone & Helsper, 2008). Parental mediation is a key factor in the online lives of young children; however, there is a dearth of research on the parental mediation of young children (Nikken & de Haan, 2015; Shin & Huh, 2011) and we do not know how parental mediation is related to specific risks and opportunities. We also lack a greater understanding of the role of children and their characteristics in the mediation process. Consistent with the new sociology of childhood (Christensen & James, 2008) we consider the child as an active subject who is not only formed by the system of family and exogenous factors, but also plays an active role in the construction of the family and its environment. Children are not passive recipients of parental mediation. They can influence the approaches by which their parents regulate their activities (Prout, 2008). Therefore, in the present research, we sought to understand how parents mediate the online experiences of young children in the family context, what is the role of the child in the mediation, and how parents mediate specific online risks and opportunities.

YOUNG CHILDREN'S ONLINE EXPERIENCES

To understand parenting in the digital age, it is necessary to understand young children's online behavior because the activities that children engage in with digital technologies can lead to

experiencing different kinds of outcomes. Findings related to negative experiences and outcomes (i.e., risks and harm) show that children's technology use can be associated with content risks (e.g., seeing upsetting pictures), contact risks (e.g., receiving unwanted messages from strangers), and conduct risks (e.g., online aggression) (Livingstone, Mascheroni, & Staksrud, 2017). Positive experiences and outcomes (i.e., opportunities and benefits) can also be divided into the same broad areas: content (e.g., learning new information), contact (e.g., enhancing social competencies), and conduct (e.g., identity expressions).

The risks and opportunities for adolescents and youth are well-documented, and to some extent also for the population in middle childhood. There are wide national studies for these ages in the United States (Youth Internet Safety Survey, ages 10-17) and in Europe (EU Kids Online II and III, ages 9-16). They focus on the prevalence, related factors, associated risks and opportunities, and coping strategies for selected online activities. Research on younger children and their use of digital technology is more scarce and has only recently begun to expand; for example, recent research in the USA focuses on the role of media in children's development, especially in the context of education (e.g., Blackwell, Lauricella, & Wartella, 2014). However, most research has mainly been published in descriptive research reports (e.g., Chaudron et al., 2015; Rideout & Katz, 2016) or in reports that have a dominant focus on preschoolers (e.g., Marsh et al., 2015).

Research findings indicate that preschool children (Marsh et al., 2015) and children around 7 years old (Chaudron et al., 2015; Nikken & Jansz, 2014) are engaged in more limited online activities and thus are exposed to different risky situations than the older population – such as different content that is evaluated as uncomfortable, or commercial risks. Children aged 8 and older progressively expand the range of their activities in comparison with younger children (e.g., they start using social networking sites, play online games; Ofcom, 2016), which may lead to experiencing more varied risks as well as opportunities. New activities that children engage in represent unique experiences for children to cope with, but also pose a challenge for the whole family, which must dynamically react to the children's development.

PARENTAL MEDIATION

According to Youn (2008), parental mediation is a form of parental socialization because parents, as the primary socialization agents, influence their children's behaviors and attitudes to become more competent technology users. We defined parental mediation above as parental management of the relation between children and media in line with Livingstone and Helsper (2008). Parental mediation could also be seen as a "specific" or "new" type of parenting. However, many different classifications of parental mediation have been formulated in previous studies (such as Nikken & Jansz, 2014; Zaman, Nouwen, Vanattenhoven, de Ferrer, & Van Looy, 2016; Livingstone, Ólafsson, et al., 2017).

The first studies of parental mediation in children's television viewing identified three main types of parental mediation: active/instructive mediation, restrictive mediation, and co-viewing (Nathanson, 1999; Warren, 2003). Based on previous classifications, Livingstone and Helsper (2008) created four widely-used mediation types specifically for the mediation of children's digital media usage: active co-use, technical restrictions, interaction restrictions, and monitoring. The active co-use category suggests that sharing the media is more active when the child uses the internet than when they watch television. It refers to behavior in which the parent is sitting near the child and talks to them about the online activity. Co-use also involves restrictions associated with the communication of personal information online, shopping online, completing forms, etc. These

restrictions are included in this category because parents can explain and enforce such restrictions during co-use. Diverse restriction strategies were divided into two different categories: technical restrictions and interaction restrictions. The interaction-restriction category is associated with the prohibition of contacting others (e.g., using e-mail, chat, game playing). Technical restrictions represent the installation or use of software that, for example, filter content and prevent access to some websites. The last category, parental monitoring, is connected to checking the child's activities after the child's use of the internet, either covertly or overtly (Livingstone & Helsper, 2008). The previous research on the styles of parental mediation was mostly carried out among families with children 9 years old and older (i.e., Haddon, 2015; Talves & Kalmus, 2015). Research on families with younger children is more scarce. Research on the mediation of younger children was carried out by Nikken and Jansz (2014) with Dutch parents of children aged 2 to 12. The authors revealed the following five mediation styles: co-use (e.g., using the internet together); active mediation (e.g., helping children understand what to do when being harassed online); restrictive mediation of access (e.g., general restrictions, time limitations); restrictive content-specific mediation (e.g., banning certain sites); and supervision (e.g., parent's monitoring of their children's internet use when nearby). The authors identify supervision as a new mediation in the context of online behavior. In contrast to Livingstone and Helsper (2008), Nikken and Jansz (2014) did not find monitoring the child's activities after the child's use of the internet to be a distinct type of mediation. They hypothesized that this kind of mediation applies more to older children.

Zaman et al. (2016) carried out a qualitative, mixed-method study in Belgium that included 24 Flemish parents and their 36 children, aged 3 to 9. They investigated the strategies the parents used to mediate their young children's media use and what contextual factors influenced the parental mediation practices. They identified the following parental mediation practices: restrictive mediation, participatory learning involving co-use plus active mediation, and distant mediation. Restrictions of activities in terms of time, device, content, location, and purchase were found. Two types of co-use emerged in the data when parents behaved as helpers or as buddies. Parents behaving as helpers guided their children when they learned how to use the medium or when problems with usage arose. Parents as buddies shared some media activities with their children purely for enjoyment. Active mediation included discussions between the parents and their children. The distant mediation included "deference" when parents decide not to intervene and to respect the autonomy of their children, and "supervision", which is associated with situations where the parents allow their children to use digital technology independently but under close parental supervision.

Zaman et al. (2016) also revealed several external and internal contextual factors that are associated with parental mediation. Situational factors were related to weather, family composition and schedule, social contact, the disposition of media devices, and the architecture of the house. Internal factors were related to attitudes, digital media, health, and parenting. The authors describe how parental mediation is changing in relation to the contextual demands that evolve over time (such as the popularity of devices) or vary between locations (such as less strict rules in the car).

In the present article, we follow this line of research on the situational factors of parental mediation. We aim to develop an understanding of specific parental mediations in relation to online opportunities and risks in the family context.

FACTORS ASSOCIATED WITH PARENTAL MEDIATION

Recent research has discovered several factors that are associated with the parental mediation of technology use. On the individual level, studies have indicated that parental mediation can be related to demographic variables, such as the age and gender of the parents (Kirwil, Garmendia, Garitaonandia, & Martínez Fernández, 2009; Sonck, Nikken, & de Haan, 2013); the parents' education (Kirwil et al., 2009); the age and gender of the children (Eastin, Greenberg, & Hofschire, 2006; Livingstone & Helsper, 2008); the household socioeconomic status (Livingstone & Helsper, 2008); and the family size (Sonck et al., 2013). Parental mediation is also associated with the parents' perceptions of their children's digital skills (Livingstone, Ólafsson, et al., 2017); the level of the child's (Lee & Chae, 2012) and the parents' media literacy (Mendoza, 2009); the level of the parents' digital skills (Livingstone & Helsper, 2008); the child's motivation to use media; the frequency of media use in the family (Lee & Chae 2007; Livingstone & Helsper, 2008); and the parents' views on the various effects of media content on their children (Sonck et al., 2013). On the socio-cultural level, studies have indicated that parental mediation of their children's internet use is affected by the culture of their country (i.e., countries' individualistic or collectivistic values; Kirwil, 2009) and their country's level of welfare (Kalmus & Roosalu, 2012). These studies focused on factors associated with parental mediation and they were based on investigations within families with children aged 9 and older.

The other relevant factors for families with younger children were investigated even less. One project researched 896 Dutch parents of children under 7 and investigated which factors on both the side of the child and the parent characteristics predicted mediation by the parent (Nikken & Schols, 2015). The authors revealed that children's media use is predicted by the children's skills to use the media and the age of the child. Furthermore, parental mediation strategies depended on the parents' attitudes toward media. Finally, the authors revealed that mediation strategies varied among families with infants, toddlers, preschoolers, and early-childhood children. The study indicated that parental mediation was also associated with the children's media skills and media activities.

RESEARCH GOALS

As we explained above, our research assumed that the child is an active subject in the family system and that the child plays an active role in the process of technology mediation. The role of young children in the mediation process has not been sufficiently investigated in previous research and we aim to fill this gap with our research. In our investigation, we focus on the mediation strategies that parents use to shape the online experiences of 7-8-year-old children and we investigate the parental mediation of specific online opportunities and online risks for young children. We sought also to understand the situational factors that play a role in the parental mediation of technology risks and opportunities, and the active role of the child from the perspective of the parents

METHOD PARTICIPANTS

The sample consisted of 10 families from the Czech Republic ($N_{\text{mother}} = 8$, $N_{\text{father}} = 6$, $N_{\text{children}} = 21$) who had at least one 7-8-year-old child ($N = 10$, $M = 7.5$ years $SD = 0.39$) who used a tablet, PC, or smartphone at least once a week. The parents' ages ranged from 35 to 41. For detailed information see Table 1. Seven families had two parents; three had a single parent (a mother); and one family shared their household with a grandfather. All of the parents were Czech. Their education ranged from vocational to university level. The income of the families also varied from under half of the national median to above the national median. All the families had PC/laptops, smartphones, and mobile phones in the household. Seven families owned at least one tablet. The

children had access to these devices. Some children had possession of their own devices (specified in Table 1). Within this research, we analyzed data from interviews with parents.

PROCEDURE

Our research was part of a research project called “Young Children (0-8) and Digital Technology” carried out by the Joint Research Centre, Institute for the Protection and Security of the Citizen (see Chaudron et al., 2015). The present research is based on a more detailed re-analysis of the data collected in the Czech Republic only. Individual face-to-face interviews – separately with the parent(s) and separately with the child/children – were carried out from September 2014 to October 2014. Interviews took place in the home of the participants. The semi-structured interviews with parents were between 35 and 85 minutes long (60 minutes on average). Parents were interviewed about four main areas: (1) devices employed, activities, and skills; (2) parental mediation; (3) family rules about technology usage; and (4) the parents’ perceptions of new technologies and parental concerns of technologies. The interviewers used an interview guide to follow questions and observation protocol as developed by the Joint Research Centre (for detailed information, see Chaudron et al., 2015).

To find participants, six primary schools in the South Moravia region were sent a request to forward invitations for participation to students of second-year classes, which were then delivered to parents. Approximately 350 invitations were distributed in this way. Thirty families registered to participate in the study and interviews were subsequently held in 10 of them. Families were chosen to create a variable sample – in order to have two- and one-parent families; to have families with one and more children; to have families with child/children who owned a device on their own etc. The parents received gifts for their children provided by the Joint Research Centre and 1,000 CZK (approximately 37 EUR) for participating in the research (the national median monthly income for a two-member family is 24,000 CZK, approximately 888 EUR).

All of the participants were informed about the purpose of the research and they provided written informed consent. The study received ethical approval from the European Commission. For more information, see the general report from all seven countries (Chaudron et al., 2015)

Table 1. Detailed Description of Participants

ANALYSES

All interviews were transcribed verbatim. For the purpose of this study, only interviews with parents were analyzed. A Thematic Analysis procedure was applied as the analytic method (Braun & Clarke, 2006). The first and second authors conducted the analyses. The six steps of the Thematic Analysis method were used:

- (1) getting familiar with the data through multiple readings of the transcripts in an excel file
- (2) generating initial codes to highlight topics in the data
- (3) grouping the codes into categories and searching for recurring themes
- (4) reviewing the emergent themes
- (5) defining and naming the themes
- (6) producing the report (Braun & Clarke, 2006)

To increase the validity of the findings and to strengthen the inter-coder triangulation of results, an audit was completed. The third author validated the themes developed by the first and second authors.

RESULTS

The parents of 7-8-year-old children face the necessity of using mediation strategies for technology usage. We describe three themes (see Table 2) related to the mediation strategies of parents: (1) Mediation strategies of technology usage; (2) Time and place management of mediation strategies; and (3) Child as a co-creator of mediation strategies

Table 2. Mediation Strategies of Parents of 7-8-Year-Old Children

MEDIATION STRATEGIES OF TECHNOLOGY USAGE

Families in our sample reported mediation strategies for general technology usage and mediation strategies in the context of specific technology opportunities and risks. Two subthemes were identified:

(A) the mediation of technology opportunities, and (B) the future mediation of technology risks. Mediation strategies for general technology usage are related more to general rules and beliefs than to specific risks and opportunities. The parents' mediation strategies for young children are often linked to the belief that children are too young and they do not do inappropriate things with technologies, such as communicating with strangers or finding inappropriate content. As one family (C5) reveals:

Father: "For now they are visiting just appropriate sites, for now they are not going elsewhere, but we will see how it will be in the future. (...) such as they could find websites that are not for them where is..."

Mother: "...where is some advertisement and she [daughter, 7 years old] will click on it and there will be a porn site or something. (...)

Father: But now it is ok, we are waiting [for what will be in the future].

The majority of the families do not have strict rules for technology usage. Those families usually set rules situationally: "I never really had the intention to set [rules], because sometimes he doesn't even touch it and sometimes he sits there for a bit longer, for example. But it is not really like – well now you have an hour. I never really, I never intend to impose it" (Mother, C10). Technology usage in such families was perceived to be one of many activities. Therefore, they did not have any special rules. Nevertheless, general rules were applied. For example, free-time activities (including technologies) were allowed after chores and schoolwork were completed, and children had to request permission to use technologies.

Some of the families had strict rules. These rules related to the time spent with technologies and to the more accurate control of technology usage. Some parents set up rules specifically for technologies that were perceived as something special. For example, in some families technology usage was a form of reward or punishment:

"Anyway, for a reward, and when there is time, that means when... they have a lot of free-time activities, so when we come home, the first thing is to do the homework. When they are finished with the homework and there is time left and there were no problems at school, then there is some kind of reward" (Father, C2).

Mediation strategies for specific opportunities and risks were also identified. Parents reported (a)

co-use – the parent uses technology together with the child; (b) active mediation – the parent explain issues related to technology; (c) supervision – the child uses technologies while a parent is nearby; (d) parent as role model – the parent use technology while the child is observing the parent's activities; (e) restrictive mediation – the parent set up restrictions in the context of technology usage; and (f) trial and error – the parent knowingly lets the child use trial and error while using technology. The next two subthemes describe the content of the parental mediation – the mediation of opportunities and the mediation of risks as perceived by the parents. That means that the parents themselves linked some of their specific mediation activities to the opportunities, such as digital skills or possible risks. We believe it is important to clarify what the goal is for these mediation activities from the parental perspective, especially because parents are very active only in the mediation of opportunities and almost completely inactive in the mediation of risks, as we show below.

Mediation of technology opportunities. Parents from our sample gave extensive examples that provided insight into their mediation of technology opportunities. Technology opportunities perceived by parents for children include free-time activities, practical technology usage, and educational purposes. Parents also mentioned digital skills that children could learn/improve during all of the above-mentioned opportunities. In terms of the mediation strategies of online opportunities, from parent reports we identified the following strategies: co-use, active mediation, supervision, parent as role model, and restrictive mediation, and some parents let their children learn themselves by trial and error.

Digital skills. Trial and error was linked to digital skills. Some parents let their children learn to use technologies themselves, like how to download applications, and use them: "Intuitively. Trial and error, so it is not like it would be targeted... she tries it herself" (Mother, C10). Co-use was also used to manage digital skills. This strategy was initiated by either the children or the parents. Some parents pointed out that their children ask how to continue a game, and they ask for help when they can not read or speak the language. As a father (C8) explained: "They [daughter, 7 years old, and son, 10 years old] could download games on their own, (...) when the game asked for some information they asked what to do and we [father and mother] told them." Co-use initiated by parents was linked to active mediation when parents explain, for example, how to use PC components, like a mouse or a keyboard and how bookmarks, browsers, and some applications work. As a father (C4) pointed out:

"I showed him that he has a bookmark there. Then when he wants to look at something, there it is. And then I saved him tutorials for rubber-band knitting [a popular activity for children in the Czech Republic] into the bookmarks. I told him that he does not need to look for it, he does not need to google it. It is just enough to open it in the bookmark bar. He knows that now."

Parents as role models improves digital skills because it allows children to observe their parents' technology usage. Parents motivate their children to use technologies in the same way as they use them: "Otherwise, he, of course, sees us working, so for example when they are waiting for when a person finishes their work and lets them go on the internet, they see part of the work" (Mother, C3).

Free-time activities. Supervision is usually applied during free-time activities when children are allowed to use technology while a parent is nearby. Co-use is also part of some free-time activities, such as playing games or watching videos. Free-time activities, especially games, are a part of the

restrictive mediation, such as when some parents control games. As a father (C2) reflected: "So we need to choose, select, what is a suitable game for [my son]."

Practical technology usage. Parents also mentioned teaching children how technologies can help them in everyday life. They try to show children the available possibilities, like different programs and websites that could help people connect their online and offline lives, such as when they search the family vacation together. Parents usually use active mediation in combination with co-use while they search for timetables (e.g., so children get to school on their own), vacation destinations (e.g., show pictures of places and the possibilities for how to get there), free-time activities (e.g., websites of different free-time activity clubs), and shop online. For example, a father (C5) described how they look for free-time activities in their family (daughters 5 and 7 years old): "...photos and also the virtual tours are really great... for example, Wikyland [Child Park]. So we just looked, how it looks there, so we looked at the photos – Yeah, we want to go there [the daughters said]."

Education. For educational purposes, parents usually use co-use or supervision to mediate some (school) activities, such as to learn reading, writing, and mathematical skills, as a father (C5) reveals: "When she [daughter, 7 years old] was younger, she learned how to write, she liked it. We opened Word and I told her 'A' and she found and wrote 'A', and then she tried to write also whole words." Parents also mentioned that some games could improve their children's language knowledge and also basic economics skills, like profits and losses in games, or social skills, like fair play, or how to take care of someone. A mother (C9) talked about an educational program on a CD that her son used to learn languages while she supervised the process: "[My son, 8 years old] learns Czech language and English. He had this CD, there are some assignments and when he fills them in he goes to the next level and he travels around the world."

Future mediation of technology risks. Parents reported knowledge about technology risks, such as internet overuse, game addiction, meeting unknown people online (i.e., stranger danger, pedophiles), cyberbullying, data misuse, and inappropriate content. Nevertheless, every parent in our sample perceived those risks as not yet present and the use of mediation strategies unnecessary for young children. As a mother (C5) reported

"Now we really cannot do anything, because like my husband says, they are not at the stage when they would have some need for social networking sites, so there is no point in telling them. Now we tell them not to sit in a car with a stranger after school. We don't jumble their minds with the internet."

This do-nothing strategy could also be linked to the belief that mediation strategies will only be needed when something happens: "I deal with things when they come. Like, I don't worry about something that is not an issue. I try not to forbid something that has not yet happened" (Mother, C1). So far, parents wait and do not pay attention to this potential problem. For every parent in our sample, technology risks for their children in the future were connected to social networking sites (SNS). Two parents revealed that they do not want their children to know that SNS exists. They try to avoid the sites as long as possible, and they would rather lie about their SNS use than explain it. Other parents linked the start of technology risks with the development of reading and social skills, and the necessity to increase technology usage because of schoolwork.

Parents expect to deal with those risks in the future when the children start to visit SNS and develop

an online social life. For example, a father (C8) shared his fear of cyberbullying:

“We are probably afraid of contacts with different people on social sites, but we are afraid maybe more of bullying or cyberbullying than of contacts with older people with the inclination to pedophilia. Not that, I don’t think so. I think that our children are cautious enough.”

Another father (C2) shared his struggles about the mediation of danger from contact with strangers. Once he tried to talk about it with his 8-year-old son, but he did not know how and he found it difficult to use appropriate language and not scare him; therefore, he had not yet done it:

“Here you have a person, a small child, second grade, so how to tell him this fact about these people that abuse children or they pretend to be someone else... And at the same time it is probably difficult to do it in a way the child can understand, that things like this happen, and that it can be unpleasant, but at the same time not to scare them with something that it is dreadful.”

Parents differ about the strategies for how to mediate those risks in the future. Some parents do not yet know how they will manage it. Others would like to use mediation strategies that they already know from the offline world, and apply them to the online environment, i.e. the mediation of meeting strangers in the offline world applies similarly in the online one. Some parents also rely on school and the schools’ technology risk-mediation programs. However, every parent agreed that the mediation of technology risks will be necessary in the future.

TIME AND PLACE MANAGEMENT OF MEDIATION STRATEGIES

Time and place management of mediation strategies are important parts of the mediation process of technology usage. Parents reported that they distinguish between free time and working time. Mediation can be different on weekends, during holidays and days off, and during school days. As a father (C5) expressed: “During holidays, there is more freedom but during the school year... when the older daughter comes home from school, first she has to do the homework and only after that she can play.” The time of day also made a difference in the mediation process. Some families set up rituals related to the daytime and nighttime. For example, watching fairy tales before bedtime or using technologies while the parent was walking the dog in the morning.

There are also changes for exceptional occasions, like traveling, a doctor visit, an illness, or bad weather. As a mother (C10) remarked: “These mobile phones, during travelling when there are long periods of waiting, then there (we use them).” Exceptions may also be made for visits by friends and a family member, like grandparents who may apply different mediation strategies than the parents. Another special occasion is when the parents need time for their own work and they required the children to be engaged and to entertain themselves. Technologies are perceived as helpful in such occasional situations. As a mother (C10) reflected: “At home, when I need to do something quickly and I need to somehow, like, put her away. When I say it bluntly, it really is for putting her away.” Additionally, special occasions are also related to situations when children are alone, such as when they go to school or to a free-time activity. During such situations parents perceived smartphones as a communication and a monitoring tool to stay in touch with their children. This motivation is pivotal for some parents: “That is why I bought him the mobile phone, so I could control him when he would sometimes go with a friend and now I could just call him to check and know where he is” (Mother, C6). Nevertheless, when children have their own smartphones they also have the opportunity to use them without parental supervision.

Consequently, these occasions usually lead to a more liberal mediation strategy, where children are not adequately controlled, or no mediation strategy. Parents let their children use technologies by themselves, sometimes without supervision, during exceptional occasions like an illness or while parents are working or doing household chores. As a mother pointed out (C9): "I can use the P to let them watch something so they would not be scared while I go out for a walk with the dog."

We can conclude that situational factors in the mediation process are strong. Parental mediation strategies are co-constructed by parents and their children and are changing according to the specific family situation. The mediation of technology is not a stable parental behavior, but it is always developing and changing in context, according to time, place, and the children's characteristics and behavior.

CHILD AS A CO-CREATOR OF MEDIATION STRATEGIES

The parents' perceptions of their children's approaches to technologies seem to be important aspects of the mediation strategies. We identified three relevant subthemes of this category: (A) technologies as a natural part of the child's environment, (B) the child's interactions with the parents, and (C) the parent's perceptions of their child's reaction to technology usage.

Technologies as a natural part of the child's environment. The parents in our sample reported that children behave naturally and spontaneously with respect to technologies, and that technologies are a natural part of their everyday lives. They naturally learn quickly by observation and imitation. They quickly develop digital skills and use technologies on their own. For instance, a father (C2) said: "The children, they perceive it differently from the grownups, naturally right. When I show them something, they take it completely naturally and they are not learning, they just see it and that is how they do it." Such an approach encourages parents to perceive technologies as an important part of the everyday lives of their children. Parents think that children are learning naturally from observing other people. They believe that these abilities will help them in the future to use technologies properly.

The child's interactions with the parents. Parents appreciated that their children communicated with them about their technology usage. This subtheme is linked to some mediation strategies, namely co-use initiated by children and parent as role model. Parents reported that their children were able to ask for help when they struggled while using technology, and they asked for permission to use technology. As a father (C4) reported: "Every time there is some kind of problem or when he needs help with something, he comes to me. He just comes to me and asks." Parents as role models reported that their children also liked to observe their technology usage to learn new things. Consequently, parents reported that their children shared their curiosity and had a tendency to ask questions about several topics connected to the technologies. These strategies soothe parents. Parents trust their children and rely on their ability to ask for help.

The parent's perceptions of their child's reaction to technology usage. Two approaches were identified within the third subtheme:

(a) technology usage is perceived by parents as one of many activities, and (b) technology usage is perceived by parents as the preferred activity of the child.

Technology usage is perceived by parents as one of many activities. Some parents reported their children's technology usage in the context of many other activities, such as sports, games with

friends, outdoor activities, and hobbies. Parents also talked about their children's tendency to follow rules and make compromises. Some children are, according to their parents, able to stop using technologies by themselves or when asked to. Parents also perceived that some children spend an acceptable amount of time suitable amount of time with technologies, and they like also other offline activities as well. Technologies are "just" another option of many activities. As a mother (C9) put it: "I was surprised, my daughter [6 years old] is not envious that her brother [8 years old] already has a mobile phone. She is active herself. She is drawing, playing with dolls...she had more activities than technologies." Some parents reported that they have a tendency to set less rules or no specific rules at all. For example, children spend an acceptable amount of time on technologies by themselves, so the parents do not need to set time restrictions. Some parents believed their children behave responsibly. As a father (C5) reported:

"During the school year, the older daughter is so responsible that she deleted the games where you have to take care of animals. That means, she uninstalled them... and when the holidays come she will install them again so she will have time for them."

Technology usage is perceived by parents as the preferred activity. In comparison to previous category, other parents have different experiences with children. These parents perceived their children to be unable to stop the activity themselves or even when asked to. Sometimes they talked about potential tendencies to addiction or they reported that their children were fascinated by technologies. That means that their children would like to use technology any time when it is possible: "I have a feeling with [my son] that he is more inclined to habits... when he plays these games it can be on any device, he has trouble detaching from it, and he can spend endless time with it" (Father, C2). For these children, parents reported the tendency to set more rules and control more media usage. Some parents remarked that they talked with their children and explained things to them, such as the difference between fiction and reality.

The parents of three families reported having one child who was fascinated by the technologies and another who balanced technology usage with other activities. These parents distinguished those two preferences and had the tendency to compare their children. They are able to mediate each child in a different way according to that child's habits with technology preference. As the mother (C3) pointed out:

"As far as computers are concerned, a tendency of almost addiction appeared with [my older son – 7 years old]. Like, from early ages he was fascinated. And, for example, the younger son [3 years old] does not have it at all. There I don't have the need to look at it as closely, because when he, for example, watches or does something on the computer for a while, then he comes to me and says that he had enough."

DISCUSSION

Our study contributes to the current stage of knowledge of the parental mediation of technology risks with in-depth qualitative insight and focus on the situational factors in families with children aged 7-8. Our findings indicate that the parental mediation of digital media is a dynamic process that is co-constructed by the parents and the children in the context of the actual situation.

In the next three sections, we discuss our findings concerning the mediation strategies of online opportunities and risks, the time and place management of mediation strategies as a factor related to parental mediation, and the child as a co-creator of mediation strategies

MEDIATION STRATEGIES OF TECHNOLOGY USAGE

Our results suggest that parents use various kinds of mediation strategies, such as co-use, active mediation, supervision, parent as role model, restrictive mediation, and trial and error. Similar types of parental mediations have already been identified by previous research (Nikken & Jansz, 2014; Zaman et al., 2016). In our investigation, we enrich current knowledge by linking these mediation strategies to specific online opportunities and risks. We believe this distinction between the different goals of the mediation strategies is important because our results have revealed that parents in our sample mostly mediate the digital opportunities and do almost no mediation of the online risks for young children. Our analyses demonstrate only the perspectives of parents, such as the parents saying that the “trial and error” mediation is linked to opportunities because “children are learning on their own”. However, it is clear that such an approach of parents might be problematic because children who learn on their own are also endangered by several online risks (Nikken & Jansz, 2014; Smahel, Wright, & Cernikova, 2014), but parents did not acknowledge this problem with self-learning in our research. In the virtual environment, the border between online opportunities and risks is more blurred than it is reported by the parents in our study, who mainly described the mediation of online opportunities. Future research may reflect the possible consequences of this “trial and error” approach, such as the relation to possible online risks that children could experience while learning on their own.

The mediation of technology opportunities was mostly connected to “content opportunities” where parents let children learn new things and let them improve their digital skills. Digital skills are mediated by different approaches, such as co-use, active mediation, and parent as role model. Contact opportunities that were identified in the previous research on older children were not directly present in our results. Some parents used games or programs in the educational context, which could improve some aspects of their children’s social skills, such as fair play. Parents also did not mention any conduct opportunities for their children. This could be linked to the characteristics of their children’s activities. Children in our sample do not participate in SNS, blogs, or online games. Parents also did not mention these applications as possible opportunities in the future.

Concerning the mediation of online risks for young children, it seems that parents in our sample underestimated the possible online risks. The parents were mostly afraid of the “contact risk”, such as the possibility that their children could communicate with strangers online, like within social networking sites. Therefore, it seems that parents from our sample were mostly afraid of the future, which is in line with the study carried out in Singapore on the population of families with children aged 7 to 12 (Shin, 2015). But previous research has also indicated that young children (under 8 years old) are sometimes exposed to interactions with online strangers within online games (Brito & Dias, 2016). Parents in our sample were not aware of this problem and they planned to mediate online risks in the future when their young children start to communicate more online. Future research should investigate this issue on larger samples and in more cross-cultural contexts.

Further, within our sample none of the parents spoke about the “content risk”, such as advertising, violent content, sexual content, or idealized thin or muscular images that can be displayed to children on the internet (Staksrud & Livingstone, 2009). For instance, media exposure of the ideal physique could be linked with some eating disorders symptomatology, mostly among users at risk for developing an eating disorder (Hausenblas et al., 2013). It seems that parents in our sample

underestimate this kind of risk. In the previous research, about 10% of parents reported that their children under 5 years old had made in-app purchases by accident and that children had been exposed to content that made them feel uncomfortable (Marsh et al., 2015). This theme requires further research that should involve more methods, such as recording the screen devices of children. It is evident that some parents do not know about inappropriate content and further research should probably directly investigate the online behavior of children.

The parents in our sample also did not speak about the possible “conduct risk” where the child becomes an actor within possibly risky scenarios, such as creating aggressive content, and harassing or bullying others (Staksrud & Livingstone, 2009). However, Marsh (2010) reported these kinds of behaviors within the virtual world among 5-8-year-old children, such as throwing virtual snowballs at avatars, excluding avatars from parties, and name-calling. It seems that parents are not aware that their children aged 7 and 8 might engage in this type of possibly risky behavior. In our investigation, parents reported almost no mediation strategies related to online risks, but they reported many strategies for enriching their children’s opportunities, such as digital skills. The enrichment of digital skills might lead to better resilience against online risks. Vandoninck and d’Haenens (2014) reported that technical instrumental actions, such as deleting, unfriending, or blocking certain people, might lead to successful preventive strategies against online risks.

Time and Place Management of Mediation Strategie Time and place was described by parents as a very important factor for the mediation itself. This result is in line with the research of Zaman et al. (2016), who also indicated the importance of considering contextual factors, like when, where, and under which external conditions children are allowed to use the media. Several studies have shown that parents use rules to mediate their children’s usage (i.e., Livingstone & Helsper, 2008). Our study indicates that rules are not strict in some families, and that the rules are set more situationally in relation to the context, such as where and when the children use the technology and also what the needs of the parents are. Therefore, some parents are not able to report specific rules of technology usage that are more contextual and they rely on general rules that are valid for both offline and online life, such as when children finish their homework they can play their dolls or the tablet.

Our results indicate that parental mediation strategies change according to the family situation. They are not a stable, easily measurable behavior; rather, they emerge over and over again according to time, place, and the parents’ and children’s characteristics and behavior. Up-to-date research has mostly measured the socio-demographic factors of parents and children that impact parental mediation, such as gender, age, education, digital skills (i.e., Livingstone, Ólafsson, et al., 2017; Nikken & Schols, 2015). We suggest that future research should involve the context of the situation more, such as the time and place of the application of the mediation strategies, because there is nothing like stable general mediation. Therefore, we recommend that future surveys should not only ask about general parental mediation but also connect the mediation to a concrete situation and context. Future research should also reflect the role of the parents’ perceptions of their children’s behavior, such as their ability to ask for help. When parents, for example, believe that their children will ask them for help if a problem occurs, they apply fewer mediation strategies than if they believe their children will not ask for help. These situational factors, such as the time and place management of mediation strategies, also play a role in the possible underestimation of online risks because, in certain situations, such as travelling and when parents need time for themselves, parents apply fewer mediation strategies or they do not use mediation strategies at all.

CHILD AS A CO-CREATOR OF MEDIATION STRATEGIES

According to Mesch (2009), the research of parental mediation was based on the premise that technologies can affect children's attitudes and behaviors. These technological effects can be influenced by parental activities to a certain extent. Nevertheless, our research indicated that parents are also influenced by their child's behavior, which then affected their mediation strategies. In our perception, parental mediation is more a process of the interactions between children and parents that co-constructs the mediation strategies of the parents. The reported parental perceptions of children as the co-creators of the mediation strategies is in line with the new sociology of childhood (Christensen & James, 2008), which presents the child as an adequate socialization agent and not just the recipient of parental care. Although our research is from the parental perspective, the parents acknowledge the role of their children in the mediation process. This result also supports the study of Livingstone, Ólafsson, et al. (2017), which indicates that the parental mediation of technology usage is interconnected with the parents' perception of their child's digital skills. When parents perceive a child as a competent internet user they support their activities, such as allowing them to use the technology for a longer time and without constant supervision. On the other hand, parents applied more restrictive strategies for less digitally skilled children which may further limit their possibilities for increasing digital skills. Future research should also reflect this position and should be focused on the different aspects of the child's behavior and the various factors that impact the parental mediation.

LIMITATIONS AND FUTURE RESEARCH

Our investigation was carried out within only 10 families in the Czech Republic and the generalization of the results is very limited. We endeavored to make the sample various and we included families in different configurations (see Table 1). The nature of the sample allowed us an in-depth exploration of the families where children have regular access to technologies. Unfortunately, we do not know how it works in families with no regular access to technologies. We also did not have a family with young children whose social networking sites in our sample. It may be that families with such young children use different mediation strategies because some parents said that they will use different strategies in the future when their children meet people online, such as within social networking sites. It is also possible that the parental mediation strategies of young children's technology usage varies across countries and cultures. We recommend future quantitative and comparative research to validate such hypotheses. Our investigation was also focused only on the perspectives of parents, which is a substantial limitation. It might be that children would bring different perspectives to the investigation.

Implication

Our research indicates that parental mediation is a dynamic process that is co-constructed by the parents and the child in the context of the actual situation. This could indicate that it might be more effective to give education concerning digital skills to both parents and children together, such as in families and/or through online courses, because such education would affect both of the actors within the mediation process. It is also important to recognize that there is typically not one parental mediation strategy, but the strategies vary according to different situations. The "optimal mediation" could vary at different places (such as at home, on vacation, while travelling, or with grandparents) and at different times (during weekdays, during weekends, or during holidays). The future education should be aware of these different contexts and this knowledge could also be applied to educational programs for children, parents (Cook, 2016) and teachers (Karaseva, Siibak, Pruulmann-Vengerfeldt, 2015). For example, it could be recommended that parents should

think more about the mediation of situations where they have less control over their children's technology usage, such as when the child is with grandparents or at summer camps. Parents should speak with other caregivers about their mediation strategies to balance the approaches of both sides, or at least to know the mediation strategy of the other side.

It seems from our investigation that parents prefer to not speak with their young children about online risks. Parents should be informed about the possible online risks for their children, such as the content or contact risks within online games. It might also be important to inform parents that they can help children to avoid risks by teaching their children digital skills.

EMERGING AREAS MCQS

1. Coronary artery disease (CAD) can be determined by this test

- (a) Cardiac catheterization
- (b) Electrocardiogram
- (c) Treadmill stress test
- (d) all of these

Answer: (d)

2. The modifiable risk factor associated with coronary artery disease is

- (a) Age
- (b) Obesity
- (c) Heredity
- (d) Gender

Answer: (b)

3. This is one of the symptoms of Coronary artery disease

- (a) Sleep problems
- (b) Headache
- (c) Diarrhoea
- (d) Pain or discomfort in the chest, lower jaw or arms

Answer: (d)

4. If a stent is not used in a few cases who have coronary angioplasty done, the artery tends to narrow down or get blocked again in 6 months. This is more likely to happen if:

- (a) one smokes
- (b) one has unstable angina before the procedure
- (c) one has diabetes
- (d) all of these

Answer: (d)

5. Coronary angioplasty, part of CAD's treatment involves:

- (a) A new part of artery replaces the blocked section
- (b) to expand artery, medication is used

(c) inflation of a tiny balloon inside an artery

(d) None of these

Answer: (c)

6. Doctors place a stent inside the artery during angioplasty. A stent is a

(a) A new fragment of the artery

(b) A wire mesh tube

(c) A cotton tube

(d) A slow-release medicine capsule

Answer: (b)

7. The _____ branches into Circumflex artery and left anterior descending artery

(a) Left main coronary artery

(b) right marginal artery

(c) Posterior descending artery

(d) None of these

Answer: (a)

8. One of these is not a symptom of acute coronary syndrome

(a) ST Segment elevation myocardial infarction

(b) Non ST segment elevation myocardial infarction

(c) unstable angina

(d) No episodes of dyspnea

Answer: (d)

9. Ischemia is

(a) restriction of blood supply to tissues

(b) Overflow of blood to tissues

(c) Inadequate deoxygenated blood carrying veins

(d) the medical term for shortness of breath

Answer: (a)

10. This is the role of the coronary artery

(a) to carry blood away from the heart muscles

(b) to supply blood to heart muscles

(c) to supply blood to all parts of the body

(d) none of these

Answer: (b)

11. person who incites or abets the commission of a crime and is present actually or constructively is considered to be a(n):

a. accessory before the fact

b. principal in the first degree

c. accessory after the fact

d. principal in the second degree

Answer: (d)

12. Which of the following is true in regard to conspiracy?

a. Conspiracy permits criminal prosecution for the behavior of others as well as for one's own acts

b. Conspiracy is a very important tool for prosecutors

c. Conspiracy may be distinguished from attempt in that attempt requires an act or preparation, whereas the agreement may be sufficient to constitute the act requirement in conspiracy

d. All of these are true

Answer: (d)

13. Which of the following is true of forfeitures?

a. RICO is the only federal statute that permits forfeitures

b. RICO is used frequently as a basis for civil cases because of the potentially high penalties

c. Individuals who lose property through forfeiture laws are always charged with crimes

d. All of these are true

Answer: (b)

14. Which of the following is an example of an inchoate crime?

a. attempt

b. murder

c. rape

d. forgery

Answer: (a)

15. Which of the following is true of solicitation?

a. The incitement may be directed at a crowd, not just a particular individual

b. Solicitation requires a purpose to promote or facilitate the commission of a crime

c. In some states renouncing the solicitation is permitted as a defense to solicitation

d. All of these are true

Answer: (d)

16. _____ crimes are important not only because they are threatening in and of themselves, but also because they may lead to other crimes.

a. Strict liability

b. Conspiracy

c. Inchoate

d. Petty

Answer: (c)

17. Enticing another person to commit a crime is known as:

a. conspiracy

b. solicitation

- c. aiding and abetting
- d. vicarious liability

Answer: (b)

18. A(n) ___ crime is defined as an act involving two basic elements: a step toward the commission of a crime and a specific intent to commit that crime.

- a. conspiracy
- b. inchoate
- c. strict liability
- d. attempt

Answer: (d)

19. To ___ is to assist or facilitate the commission of a crime.

- a. aid and abet
- b. conspire
- c. attempt
- d. coerce

Answer: (a)

20. Which of the following is a defense in an attempt case?

- a. impossibility
- b. renunciation
- c. incompleteness
- d. degree of seriousness

Answer: (a)

21. Some state legislatures have enacted statutes criminalizing the knowing exposure of another to:

- a. syphilis
- b. herpes
- c. HIV or AIDS
- d. All of these are included in the statutes

Answer: (c)

22. _____ means agreeing with another to join together for the purpose of committing an unlawful act or agreeing to use unlawful means to commit an act that would otherwise be lawful.

- a. Attempt
- b. Conspiracy
- c. Aid and abet
- d. Coercion

Answer: (b)

23. _____ was intended by Congress to reach serious cases—major violators who engage in a pattern of racketeering activity.

- a. The Wharton rule

- b.** Forfeiture
 - c.** The Pinkerton rule
 - d.** RICO
- Answer: (d)

24. ___ means association in a wrongful act.

- a.** Negligence
- b.** Mens rea
- c.** Complicity
- d.** Tort

Answer: (c)

25. Under the common law a(n) _____ was the person who committed the crime.

- a.** accessory
- b.** principal
- c.** accomplice
- d.** co-conspirator

Answer: (b)

26. In recent years the U.S. Department of Justice has indicted ___ who, they allege, have engaged in aiding and abetting or conspiring with their clients.

- a.** attorneys
- b.** doctors
- c.** psychologists
- d.** accountants

Answer: (a)

27. The ___ rule is a limitation on parties to the crime of conspiracy.

- a.** accomplice
- b.** principal
- c.** facilitation
- d.** Wharton

Answer: (d)

28. Which of the following does RICO prohibit?

- a.** conducting or participating in an enterprise's affairs through a pattern of racketeering activity
- b.** possession of marijuana
- c.** prostitution
- d.** treason

Answer: (a)

29. The ___ holds that a co-conspirator may be held accountable for the acts of fellow conspirators even though the requirements of criminal culpability for the acts of accomplices are not met.

- a.** Pinkerton rule
- b.** Wharton rule

- c. husband-and-wife rule
- d. two-or-more rule

Answer: (a)

30. _____ is the taking by the government of money, personal items, or assets that were secured from criminal acts.

- a. Racketeering
- b. Confiscation
- c. Arbitration
- d. Forfeiture

Answer: (d)

31. Which of the following laws have been attacked as permitting police to exercise too much discretion, leading to discrimination against racial and ethnic minorities and the homeless?

- a. Fighting words
- b. Vagrancy
- c. Public intoxication
- d. Unlawful assembly

Answer: (b)

32. Which crime has been accepted as inevitable, even essential, and in some societies esteemed?

- a. Fornication
- b. Seduction
- c. Lewdness
- d. Prostitution

Answer: (d)

33. Under common law, _____ refers to the meeting of three or more persons to disturb the public peace, with the intention of participating in a forcible and violent execution of an unlawful enterprise or of a lawful enterprise in an unauthorized manner.

- a. Rout
- b. Riot
- c. Unlawful assembly
- d. Public disturbance

Answer: (c)

34. Which of the following is *not* true regarding child pornography?

- a. In 2002, the U.S. Supreme Court held that virtual child pornography—that which is created by computer simulations—may be owned or sold without violating federal statutes
- b. Congress and many states have enacted statutes aimed solely at child pornography
- c. All Judges support increased sentences for those in possession of child pornography
- d. The federal statute concerning child pornography provides for forfeiture of any property or proceeds obtained, used, or produced as a result of the crime committed

Answer: (c)

35. Which of the following crimes has been declared unconstitutional in many jurisdictions?

- a. Disorderly conduct
- b. Vagrancy
- c. Disturbing the peace
- d. Minor is possession

Answer: (b)

36. _____ is a willfully committed act that disturbs the public tranquility or order and for which there is no legal justification.

- a. Pandering
- b. Riot
- c. Breach of the peace
- d. Disorderly conduct

Answer: (c)

36. Which of the following crimes has been declared unconstitutional in many jurisdictions?

- a. Disorderly conduct
- b. Vagrancy
- c. Disturbing the peace
- d. Minor is possession

Answer: (b)

37. _____ refers to the act by a man who uses solicitation, persuasion, promises, bribes, or other methods to entice a woman to have unlawful sexual intercourse with him.

- a. Pandering
- b. Fornication
- c. Lewdness
- d. Seduction

Answer: (d)

38. Which of the following involves a minor offense, such as drunkenness or fighting?

- a. Pandering
- b. Disorderly conduct
- c. Vagrancy
- d. Loitering

answer: (b)

39. Another word for pandering is:

- a. Pimping
- b. Bribery
- c. Prostitution
- d. Embezzlement

Answer: (a)

40. _____ is consensual sexual intercourse between a married person

- a. Fighting words
- b. Vagrancy
- c. Adultery
- d. Fornication

Answer: (c)

41. Which of the following is not an alcohol and drug related offense discussed in the textbook?

- a. Drug abuse
- b. Public intoxication
- c. Driving Under the Influence
- d. Minor in possession

Answer: (a)

42. Under common law, unlawful assembly was considered a _____.

- a. Felony
- b. Violation
- c. Misdemeanor
- d. Violent crime

Answer: (c)

43. Historically, offenses against and someone other than his or _____ encompasses acts her spouse.

- a. Public decency
- b. Public order
- c. Public morality
- d. Society

Answer: (a)

44. Which of the following was created by Congress in an effort to protect children from pornography on the Internet in libraries?

- a. Virtual Child Pornography Protection Act
- b. Kid's Data Act
- c. Child Online Protection Act
- d. Communications Privacy Act

Answer: (c)

45. Which of the following is one of the conditions that must be met for information to be considered obscene?

- a. The information must be witnessed by a reasonable size audience
- b. The information must be deemed obscene by a reasonable person
- c. The work, taken as a whole, lacks serious literary, artistic, political, or scientific value
- d. There is a significant interest in sex that would offend a reasonable person

Answer: (b)

46. The textbook defines how many types of adultery?

- a. 1
- b. 2
- c. 3
- d. 4

Answer: (a)

47. Some modern statutes use which term rather than the term vagrancy?

- a. Loitering
- b. Pandering
- c. Panhandling
- d. Trafficking

Answer: (a)

48. In 2015, surveys indicated that homelessness in the Los Angeles area of California had jumped during the previous two years.

- a. 8%
- b. 12%
- c. 16%
- d. 20%

Answer: (b)

49. Which of the following is not one of the terms mentioned in the text that have been used to describe a variety of behaviors that some people find offensive to the extent that the criminal law is invoked to try to curb them?

- a. Lewd
- b. Lascivious
- c. Lecherous
- d. Sexual

Answer: (d)

50. Which circuit is called as regenerative repeaters?

- a) Analog circuits
- b) Digital circuits
- c) Amplifiers
- d) A/D converters

Answer: b

Explanation: The main advantage of digital communication is that the signals can be reproduced easily. Thus digital circuits are called as regenerative repeaters.

51. What are the advantages of digital circuits?

- a) Less noise
- b) Less interference
- c) More flexible
- d) All of the mentioned

Answer: d

Explanation: Digital circuits are less subject to noise, distortion and interference as it works on digital pulses and also the pulses can be regenerated.

52. How many different combinations can be made from a nbit value?

- a) $2^{(n+1)}$
- b) $2^{(n)}$
- c) $2^{(n)+1}$
- d) None of the mentioned

Answer: b

Explanation: $2^{(n)}$ different combinations can be made from nbit value. For example, from 2 bit value 2^2 different combinations- 00,01,10,11 can be made.

53. How many bytes does a gigabyte have?

- a) 1 million bytes
- b) 10 million bytes
- c) 1 billion bytes
- d) 10 billion bytes

Answer: c

Explanation: One gigabyte has 1 billion bytes.

54. What is the ASCII value of space?

- a) 32
- b) 48
- c) 96
- d) 65

Answer: a

Explanation: The ASCII value of space is 32 and ASCII value of 0 is 48.

55. Which block or device does the data compression?

- a) Channel encoder
- b) Source encoder
- c) Modulator
- d) None of the mentioned

Answer: b

Explanation: Source encoder converts the digital or analog signal to a sequence of binary digits. This process is called as source encoding or compression.

56. What is the code rate?

- a) k/n
- b) n/k
- c) All of the mentioned
- d) None of the mentioned

Answer: a

Explanation: Here n is the total bits of sequence and k bits are mapped. Amount of redundancy introduced is given by n/k and its reciprocal is the code rate.

57. Pulse shaping is done by which block or system?

- a) Encoder
- b) Baseband modulator
- c) Pulse code modulator
- d) Demodulator

Answer: c

Explanation: Pulse code modulator does filtering process to build pulses that occupy more than one bit time.

58. Equalizer is used for?

- a) Filtering
- b) Diminish distortion
- c) All of the mentioned
- d) None of the mentioned

Answer: c

Explanation: Equalizer is used as a filtering option and also diminishes or reduces the distortion.

59. Source coding block is used for?

- a) Compressing
- b) Digitizing
- c) A/D conversion
- d) All of the mentioned

Answer: d

Explanation: Source encoding does all these processes—compression, digitizing the signal and performs analog to digital conversion.

60. Which measurement considers phase as an important parameter?

- a) Coherent
- b) Non-coherent
- c) All of the mentioned
- d) None of the mentioned

Answer: a

Explanation: Coherent measurement considers phase as an important parameter.

61. The size of the alphabet M in symbol is calculated as?

- a) $2^{(k+1)}$
- b) 2^k
- c) $2^{(k-1)}$
- d) $1+2^k$

Answer: b

Explanation: The size of the alphabet is calculated using 2^k where k is the number of bits in the symbol.

62. Which of the following statements is correct?

- a. Health promotion can refer to any event, process or activity that facilitates the protection or improvement of the health status of individuals, groups, communities or populations.
- b. The objective of health promotion is to prolong life and to improve quality of life.
- c. Health promotion practice is often shaped by how health is conceptualized.
- d. all of these

Answer: D

63. Which of the following charters defined health promotion as 'the process of enabling people to increase control over, and to improve, their health'.

- a. Charter of the United Nations (1945)
- b. Tokyo Charter (1946)
- c. Ottawa Charter (1986)
- d. none of these

Answer: C

64. This approach to health promotion is based on the assumption that humans are rational decision-makers, this approach relies heavily upon the provision of information about risks and benefits of certain behaviours.

- a. behaviour change approach
- b. community development approach
- c. biomedical approach
- d. none of these

Answer: A

65. This approach to health promotion aims to improve and promote health by addressing socioeconomic and environmental determinants of health within the community.

- a. behaviour change approach
- b. community development approach
- c. biomedical approach
- d. none of these

Answer: B

66. This approach to health promotion is synonymous with health education as it aims to increase individuals' knowledge about the causes of health and illness.

- a. behaviour change approach
- b. community development approach
- c. biomedical approach
- d. none of these

Answer: A

68 A systematic review of fear appeal research by Ruiters, Kessels, Peters and Kok (2014) concluded that,

- a. fear tactics are the most appropriate strategy to promote healthy behaviour
- b. presenting coping information that increases perceptions of response effectiveness may be more effective in promoting healthy behaviour than presenting fear arousing stimuli
- c. no conclusions can be made concerning the effectiveness of fear tactics in promoting healthy

behaviour

d. none of these

Answer: B

69. _____ refers to the application of consumer-oriented marketing techniques in the design, implementation and evaluation of programmes aimed towards influencing behaviour change.

a. Health education

b. Social marketing

c. Consumer health

d. none of these

Answer: B

70. Which of the following is a criticism of the behaviour change approach to health promotion?

a. It is unable to target the major causes of ill health.

b. The choice of which behaviour to target lies with 'experts' whose task it is to communicate and justify this choice to the public.

c. The behaviour change paradigm does not address the many variables other than cognitions that influence human actions.

d. all of these

Answer: D

71. Which of the following is a characteristic of the community development approach to health promotion?

a. Improving individual attitudes and beliefs are key to successful health promotion.

b. There is a close relationship between individual health and its social and material contexts, thus are relevant when developing initiatives for change.

c. Individuals need to change personal behaviour rather than to change the environment to promote health.

d. all of these

Answer: B

72. Which of the following approaches to community psychology aim to connect intra-community processes with the broader socio-political context?

a. behaviourist approach

b. accommodationist approach

c. critical approach

d. none of these

Answer: C

73. Who is the author of 'Unto This Last'?

A. John Ruskin

B. Ruskin Bond

C. Hermann Kallenbach

D. Louis Fischer

Ans: A

74. Which of the following, according to Gandhiji, is an essential principle of Satyagraha?

- A.** Infinite capacity for suffering
- B.** Non violence
- C.** Truth
- D.** All the three

Ans: D

Explanation: 'Satyagraha' is the most important weapon of Gandhi ji. It emerged as a weapon of conflict resolution. Gandhi ji applied satyagraha in the non-violent struggle against exploitation, injustice and dictatorship.

75. Gandhiji's "The Story of My Experiments with Truth" was originally written in Gujarati. Who translated it into English?

- A.** Maganlal Gandhi
- B.** Mahadev Desai
- C.** Pyarelalji
- D.** Sushila Nayyar

Ans: B

Explanation: Mahadev Desai was an activist of Indian freedom movement. He is best known for his job of Mahatma Gandhi's personal secretary. He died on 15 August 1942.

76. Which one of the following books is the work of Gandhiji?

- A.** Light of India
- B.** Hind Swaraj
- C.** My Experiments with Truth
- D.** Both B & C

Ans: D

Explanation: The Story of My Experiments with Truth is an autobiography of Gandhi ji. This book covers life of Gandhi ji from early childhood through to 1921. It was published in his journal Navjivan from 1925 to 1929.

77. When Gandhiji won Nobel Peace Prize?

- A.** 1937
- B.** 1947
- C.** 1939
- D.** Never

Ans: D

Explanation: Gandhi Ji never won Nobel Peace Prize although Gandhi was nominated in 1937, 1938, 1939, 1947 and, finally, a few days before he was murdered in January 1948.

78. Who established the National Indian Congress (NIC)?

- A.** Vallabhbhai Patel
- B.** Sarojini Naidu
- C.** Jawaharlal Nehru
- D.** None of the above

Ans: D

Explanation: On 22 May, 1894 Gandhi established the Natal Indian Congress (NIC) and worked hard to improve rights of Indians in South Africa.

79. When Gandhi ji returned to India from South Africa?

- A. 1918
- B. 1910
- C. 1915
- D. 1905

Ans: C

Explanation: Gandhi ji returned to India in 1915 permanently and joined the Indian National Congress with Gopal Krishna Gokhale as his mentor.

80. Book 'The Satyagrah' was originally written in

- A. English
- B. Hindi
- C. Gujarati
- D. Bengali

Ans: C

81. Who was the political Guru of Mahatma Gandhi ji?

- A. Gopal Krishna Gokhale
- B. Dayanand Saraswati
- C. Ravindra Nath Tagore
- D. None of the above

Ans: A

Explanation: Mahatma Gandhi used to seek the opinion of the Gopal Krishna Gokhale through letters from South Africa. Gokhale was the one who persuaded Gandhi to come back to India, invest time in understanding India and work for Indian independence struggle movement.

82. What was the name of mother of Mahatma Gandhi?

- A. Leelawati
- B. Putlibai
- C. Sharda Bai
- D. Kusuma Devi

Answer: B

Explanation: Father of Mahatma Gandhi was Karamchand Uttamchand Gandhi while mother's name was Putlibai Gandhi.

83. Marginalisation means :-

- a. At the centre of thing
- b. Forced to occupy the side
- c. Both (a) & (b)
- d. None of these

Ans : (b)

84. In social environment, Marginalisation is due to :-

- a. Different Language
- b. Different Religion
- c. Minority
- d. All of these

Ans : (d)

86. Explain the reason why groups may be marginalized.

- a. Because of government profit
- b. Less Majority
- c. Both (a) & (b)
- d. All of these

Ans : (c)

87. Who are Adivasi?

- a. Original Inhabitants
- b. tribals
- c. Both (a) & (b)
- d. None of these

Ans : (c)

88. How many percent of India's population is Adivasi?

- a. Around 8%
- b. about 10%
- c. About 4%
- d. about 6%

Ans : (a)

89. Scheduled Tribes is term used for :-

- a. Rich people
- b. Adivasis
- c. People below poverty line
- d. All of these

Ans : (b)

90. Adivasi are involved in the worship of :-

- a. Ancestors
- b. Hinduism
- c. Jesus Christ
- d. temple

Ans : (a)

91. The village spirits are worshipped at :-

- a. home
- b. Town

c. Specific Sacred Groves

d. All of these

Ans : (c)

92. Do Adivasi live close to the forest?

a. No

b. May be

c. Yes

d. Can't say

Ans : (c)

93. Adivasi languages have often been deeply influenced by the formation of :-

a. Mainstream

b. Bengali

c. Sanskrit

d. Santhali

Ans : (a)

94. Adivasis are believed to be :-

a. Exotic

b. Primitive

c. Backward

d. All of these

Ans : (d)

95. Where are all the important metals present in India?

a. Forest

b. Village

c. Home

d. Jungle

Ans : (a)

96. 1835 onwards, Adivasis from Jharkhand & adjoining areas moved in India & the world's like :-

a. Mauritius

b. Caribbean

c. Australia

d. All of these

Ans : (d)

97. Niyamgiri hill is located in Kalahandi district of :-

a. Orissa

b. West Bengal

c. Punjab

d. Kerala

Ans : (a)

98.Niyamgiri is a sacred mountain of :-

- a. Adivasis
- b. Religious people
- c. Both (a) & (b)
- d. None of these

Ans : (a)

99.How many national parks are there in India?

- a. 64
- b. 54
- c. 72
- d. 82

Ans : (b)

100. How many wild life sanctuaries covering 1,09,652 square kilometer :-

- a. 570
- b. 458
- c. 372
- d. 190

Ans : (c)

101. The areas where tribal originally lived and continue to stay in these fields :-

- a. Ancestors
- b. Encroachers
- c. Both (a) & (b)
- d. All of these

Ans : (b)

102. Constitution provides safeguards to religious & _ minorities as a part of fundamental Rights.

- a. Linguistic
- b. Cultural
- c. Both (a) & (b)
- d. None of these

Ans : (c)

103. Minority means :-

- a. Used for the communities that is numerically small in population
- b. Used for the communities that is numerically small in population
- c. More groups
- d. All of these

Ans : (b)

104. Many tribal children are ____.

- a. Balanced
- b. Malnourished
- c. Healthy
- d. Efficient

Ans : (b)

105. Why do we need safeguards?

- a. To protect the state
- b. To protect the society
- c. To protect the rich people
- d. To protect minority community

Ans : (d)

106. Who plays a crucial role in upholding the law enforcing fundamental Rights?

- a. Judiciary
- b. Supreme Court
- c. High Court
- d. All of these

Ans : (b)

107. Every citizen of India can approach the courts if they believe that their fundamental Rights have been :-

- a. Increased
- b. Decreased
- c. Violating
- d. None of these

Ans : (c)

108. How many percent of Muslims are in Indian population?

- a. 13.4%
- b. 61%
- c. 14.7%
- d. 20%

Ans : (a)

109. How many Muslims live in kutcha house according to amenities 1994

- a. 63.6%
- b. 43%
- c. 67%
- d. 87%

Ans : (a)

110. Do Muslims have equal access to basic amenities?

- a. yes

- b.** may be
- c.** No
- d.** Can't not

Ans : (c)

111. According to literacy rate by religion, 2001 how many percent of population is literate?

- a.** 65%
- b.** 100%
- c.** 95%
- d.** 80%

Ans : (a)

112. Which religious group has the lowest literacy rate according to censuses of India 2001?

- a.** Hindus
- b.** Muslims
- c.** Sikh
- d.** English

Ans : (b)

113. High level committee in 2005, was chaired by :-

- a.** Hakkim shekh
- b.** Ram Gopal
- c.** Rajinder Sanchar
- d.** None of these

Ans : (c)

114. Many Muslim women wear?

- a.** Burka
- b.** Skirt
- c.** Payjama
- d.** Cargo

Ans : (a)

115. Marginalisation is linked to :-

- a.** Experiencing disadvantages
- b.** Prejudices
- c.** Powerless
- d.** All of these

Ans : (d)

116. Marginalisation result in having :-

- a.** Low social status
- b.** Not equal education
- c.** Both (a) & (b)
- d.** None of these

Ans : (c)

117. Muslims prefer to send their children to :-

- a. Madarsas
- b. Schools
- c. Colleges
- d. All of these

Ans : (a)

118. Hierarchy means :-

- a. A graded system or arrangement of person or thing
- b. Minor group
- c. Major group
- d. None of these

Ans : (a)

119. Displaced means :-

- a. To stick at one place
- b. to live in forest
- c. Refuse to be forced or compelled to move from their homes
- d. All of these

Ans : (c)

120. Militarised means :-

- a. Presence of Minor Group
- b. Presence of Major group
- c. Presence of Adivasis
- d. presence of armed force

Ans : (d)

121. Malnourishment means :-

- a. Person gets a balance diet
- b. Person gets the extra diet
- c. Person does not get adequate food
- d. None of these

Ans : (c)

122. Which one of the following is the main cause of Marginalisation?

- a. Different dress
- b. Different films
- c. Different Languages
- d. All of these

Ans : (c)

123. Marginalised groups are viewed with hostility.

- a. respect
- b. truth
- c. Fear
- d. All of these

Ans : (c)

124. Give another name of Adivasis

- a. Respective truth
- b. Tribals
- c. Educated person
- d. None of these

Ans : (b)

125. Is Adivasis having their own language?

- a. No
- b. Can't say
- c. May be
- d. Yes

Ans : (d)

126. Which one of the following metal is found in forest?

- a. Sugar
- b. Sweet
- c. Iron
- d. Tea

Ans : (c)

127. Literacy rate among tribal are every_

- a. High
- b. Low
- c. In between
- d. Supreme

Ans : (c)

128. _____ are needed to protect minor Communities.

- a. Safeguards
- b. Legal
- c. Laws
- d. None of these

Ans : (b)

129. How many percent of Muslims are in India's population?

- a. 1.34%

- b. 22.3%
- c. 15.1%
- d. 20.0%

Ans : (a)

130. _____are the importantpart of the women's movement in India?

- a. Religious Women
- b. Common people
- c. Muslim women
- d. None of these

Ans : (c)

131. Marginalisation results in :-

- a. Low social status
- b. not equal access of Eduation
- c. Both (a) & (b)
- d. None of these

Ans : (c)

132. How many percent of Muslimchildren in the 6 - 14 year of age group have never been enrolled inschools & dropped out?

- a. 70%
- b. 30%
- c. 25%
- d. 56%

Ans : (c)

133. In Muslim community, there is alink between economic &_____marginalisation.

- a. Political
- b. western
- c. Socio reform
- d. Social

Ans : (d)

134. Richard Shwederdefines 'cultural collisions' as:

- A. when cultural artifacts arecombined
- B. situations where different culturalgroups come into contact
- C. urban planning that takes intoaccount ethnic heritage
- D. when individuals from differentethnic heritages disagree

Answer: B

135. Which of the following IS NOT trueabout female genital surgery?

- A. procedures may involve mild orsevere modifications to the genitalregion
- B. this practice connects to culturalidentity
- C. worldwide this practice is mostprevalent in Australia

D. one cultural reason for the practice is cultural standards of beauty

Answer: C

136. Richard Shweder argues there is a double standard with respect to female genital surgery. Which statement best supports his argument?

A. the practice exists in part because of cultural norms and values

B. the procedure is acceptable for a Western woman who elects the procedure but barbaric for an African woman who desires the procedure

C. this is a procedure that is a cultural collision

D. outsiders are accepting of the procedure

Answer: B

137. An attitude is:

A. our reaction to events and experiences in our environment that shape our actions

B. our reaction to events that create emotional responses

C. a perspective present at birth

D. a perspective or belief that is not culture-specific

Answer: A

138. Which of the following is an example of an attitude?

A. I really like your shirt.

B. Our family has a new pet.

C. I am interested in studying cultural psychology.

D. I am thinking of a career in medicine.

Answer: A

139. Prejudice is:

A. our reaction to events and experiences in our environment that shape our actions

B. our reaction to events that create emotional responses

C. a perspective present at birth

D. a learned attitude that shapes the way we think and act toward other people and social groups

Answer: D

140. Which of the following is an example of prejudice?

A. only girls should play with dolls

B. I would not hire any person under the age of 30 for this position

C. I like Portuguese food

D. I don't like old folks

Answer: D

141. Which of the following IS NOT a component of attitudes?

A. cognitive

B. affective

C. personal

D. behavioral

Answer: C

142. A stereotype is:

- A.** a belief assigned to an entire group
- B.** present at birth
- C.** our actions towards entire groups
- D.** a perceived threat due to cultural differences in beliefs

Answer: A

143. Which of the following IS NOT a function of stereotypes?

- A.** they help us describe in-groups
- B.** they help us describe out-groups
- C.** they help us validate our in-groups and undervalue out-groups
- D.** connect to how we think about people and social groups

Answer: A

144. Which of the following is an example of a stereotype?

- A.** a perceived threat due to contact with an out-group member
- B.** anxiety due to contact with a stranger
- C.** only women make good nurses
- D.** your negative treatment of an out-group member

Answer: C

145. Discrimination is:

- A.** a belief assigned to an entire group
- B.** present at birth
- C.** our actions towards entire groups
- D.** a perceived threat due to cultural differences in beliefs

Answer: C

146. Discrimination differs from prejudice and stereotypes because discrimination:

- A.** involves our actions and the way we treat others because of their group membership
- B.** is a learned attitude
- C.** is a belief system present at birth
- D.** never has negative or damaging consequences

Answer: A

147. One important difference between discrimination, prejudice, and stereotypes is that discrimination:

- A.** involves our beliefs about others because of their group membership
- B.** is a learned attitude
- C.** is a belief system present at birth
- D.** has an emotional component

Answer: D

148. Which of the following is an example of discrimination?

- A. Younger workers are not loyal to their companies
- B. I would never want to work for a woman.
- C. Asian children are high achievers
- D. I hate customer service representatives who aren't helpful

Answer: D

149. In their work on stereotypes, Cuddy, Norton, and Fiske found:

- A. most participants viewed the elderly both positively and negatively
- B. participants in communities that emphasize a respect for elders held different views than other participants
- C. one explanation for participant responses is social media
- D. no ageism emerged in their study

Answer: A

150. Inter-group anxiety refers to:

- A. unfavorable perceptions we hold about out-group individuals
- B. threats we experience due to our experiences
- C. anxiety from real or anticipated contact with an out-group individual
- D. perceived threats due to cultural differences in beliefs and practices

Answer: C

151. Negative stereotypes are:

- A. unfavorable perceptions we hold about out-group individuals
- B. threats we experience due to our experiences
- C. anxiety from real or anticipated contact with an out-group individual
- D. perceived threats due to cultural differences in beliefs and practices

Answer: A

152. Realistic threats are:

- A. unfavorable perceptions we hold about out-group individuals
- B. threats we experience due to actual experiences with our group members
- C. anxiety from real or anticipated contact with an out-group individual
- D. perceived threats due to cultural differences in beliefs and practices

Answer: B

153. Symbolic threats are:

- A. unfavorable perceptions we hold about out-group individuals
- B. threats we experience due to our experiences
- C. anxiety from real or anticipated contact with an out-group individual
- D. perceived threats due to cultural differences in beliefs and practices

Answer: D

154. In their study with Dutch workers, Curseu and colleagues found:

- A.** symbolic threats were more influential in determining ethnic prejudice toward immigrants
- B.** realistic threats were more influential in determining ethnic prejudice toward immigrants
- C.** negative stereotypes were more influential in determining ethnic prejudice toward immigrants
- D.** inter-group anxiety was more influential in determining ethnic prejudice toward immigrants

Answer: C

155. In their study with Dutch workers, Curseu and colleagues found that:

- A.** repeated positive interactions with immigrants reduced all threats and negative stereotypes
- B.** repeated positive interactions with immigrants reduced negative stereotypes
- C.** repeated positive interactions with immigrants reduced all threats
- D.** repeated positive interactions had no impact on Dutch worker and immigrant relationships

Answer: A

156. The Stereotype Content Model is useful for studies on:

- A.** symbolic threats
- B.** inter-group anxiety
- C.** realistic threats
- D.** stereotypes

Answer: D

157. The Stereotype Content Model uses two traits to study stereotypes. They are:

- A.** warmth and competence
- B.** warmth and nurturance
- C.** warmth and power
- D.** status and power

Answer: A

158. You are interested in studying stereotypes. Which of the following relates to the dimension warmth in the Stereotype Content Model?

- A.** a group's ability to work cooperatively
- B.** social status
- C.** power
- D.** positive attitudes

Answer: A

159. Glick and colleagues studied college students worldwide regarding their perceptions of the US and its citizens after the 9/11 attack. They found:

- A.** US citizens were competent, arrogant, and cold
- B.** the US government was more arrogant than its citizens
- C.** the US government showed more concern for cooperating with other nations
- D.** the US government showed no desire to exploit others

Answer: B

160. Which of the following IS NOT true about colorism?

- A. it is the biased treatment of individuals based upon skin color
- B. it is a type of prejudice
- C. it is a type of discrimination
- D. it appears in every cultural community worldwide

Answer: D

161. Evidence suggests that a preference for fair skin in India connects to all of the following EXCEPT:

- A. Hinduism
- B. British colonization
- C. the caste system
- D. modernization

Answer: D

162. The origins of light skin preference in the US connect to which of the following?

- A. slavery
- B. the Civil Rights Act
- C. interethnic romantic unions
- D. social media

Answer: A

163. Implicit bias is:

- A. an unintentional and unconscious bias towards light-skinned individuals
- B. a learned attitude
- C. a stereotype
- D. a bias on the basis of social status

Answer: A

164. In a study that explored cultural mismatch between jurors and defendants, the authors found that European American jurors were more likely to render a guilty verdict when the defendant was dark-skinned. This is an example of:

- A. a stereotype
- B. implicit bias
- C. a learned attitude
- D. discrimination

Answer: B

165. What is one possible explanation for skin color bias in Mexico?

- A. slavery
- B. a person's occupation
- C. Spanish colonization
- D. implicit bias

Answer: C

166. Xenophobia is:

- A. an irrational fear of heights
- B. an irrational fear of water
- C. an irrational fear of the unfamiliar
- D. an irrational fear of snakes

Answer: C

167. One explanation for the hostility some people feel towards immigrants is:

- A. implicit bias
- B. prejudice
- C. stereotype
- D. xenophobia

Answer: D

168. Yakushko suggests that hostility towards immigrants is due to all the following EXCEPT:

- A. xenophobia
- B. ethnocentrism
- C. economic struggles
- D. implicit bias

Answer: D

169. Out-group entitativity describes:

- A. how outsiders perceive a group's strength to act together to achieve shared goals
- B. negative perceptions of an out-group
- C. an unconscious bias toward light-skinned individuals
- D. an irrational fear of the unfamiliar

Answer: A

170. In their work with Norwegian college students, Ommundsen and colleagues found that:

- A. native born Norwegians did not perceive Muslims as a cohesive group
- B. positive interactions increased fears of xenophobia
- C. when native born Norwegians perceived Muslims as a cohesive group, fears of xenophobia increased
- D. when native born Norwegians perceived Muslims as a cohesive group, fears of xenophobia decreased

Answer: C

171. Which of the following IS NOT a strategy some immigrants may use to adjust to their new home?

- A. they maintain their cultural traditions
- B. they maintain their cultural values
- C. they seek out members of their in-group for a sense of belonging
- D. they assimilate to the host country as soon as possible

Answer: D

172. Which of the following is the cause of much psychological distress for immigrants and their children?

- A. learning a new language
- B. finding a job
- C. pressure to assimilate
- D. finding a place to live

Answer: C

173. Acculturation is:

- A. a type of implicit bias
- B. an adjustment process that most immigrants experience
- C. a type of stereotype
- D. a form of xenophobia

Answer: B

174. Berry introduced several different orientations that help immigrants adjust to their new community. They include all of the following EXCEPT:

- A. assimilation
- B. integration
- C. separation
- D. enculturation

Answer: D

175. A Liberian family now living in Austria has adopted its new country's values while retaining their native Liberian cultural values. According to Berry, this is an example of which orientation:

- A. assimilation
- B. integration
- C. separation
- D. marginalization

Answer: B

176. A Uruguayan family that moved to Costa Rica decides to highly value Uruguayan values and traditions while also choosing to isolate themselves from the dominant majority in their new home. According to Berry, this is an example of which orientation:

- A. assimilation
- B. integration
- C. separation
- D. marginalization

Answer: C

177. Integrated threat theory explains:

- A. stereotypes between different social groups

- B. implicit bias between different social groups
 - C. inter-anxiety between different social groups
 - D. the causes of threats between different social groups
- Answer: D

178. Many immigrants experience a loss of their cultural identity when moving to a new country. The term for this experience is:

- A. implicit bias
- B. identity theft
- C. xenophobia
- D. separation

Answer: B

179. Which strategy might an immigrant family use to reduce the stress of coming into contact and interacting with members of their new host country?

- A. xenophobia
- B. identity theft
- C. implicit bias
- D. cultural retention

Answer: D

180. Biculturalism is all of the following EXCEPT:

- A. a good strategy to help immigrants adjust to their new home
- B. the ability to interact in more than one cultural setting
- C. the ability to speak more than one language
- D. something many teenage immigrant children experience in adjusting to their new home

Answer: C

181. Schwebel and Hodari's case study of a Filipino teenage boy adjusting to life in the US, supports the benefits of which of Berry's orientation types?

- A. integration
- B. marginalization
- C. separation
- D. assimilation

Answer: A

182. Integration as an orientation strategy for immigrants connects to which of the following?

- A. implicit bias
- B. xenophobia
- C. biculturalism
- D. cultural retention

Answer: C

183. The contact hypothesis predicts that when in-group and out-group members have face to face

interactions and share cooperative goals these should:

- A. increase intergroup anxiety and stereotypical thinking
- B. decrease symbolic threats and stereotypical thinking
- C. decrease prejudice, discrimination, and stereotypical thinking
- D. increase prejudice, discrimination, and stereotypical thinking

Answer: C

184. The contact hypothesis helps reduce:

- A. stereotypes
- B. implicit bias
- C. assimilation
- D. acculturation

Answer: A

185. A longitudinal approach:

- A. is a short term research design
- B. a research design that lasts for an extended period
- C. must take place in only one cultural setting
- D. must take place in numerous cultural settings

Answer: B

186. Binder and colleagues studied ethnic majority and minority children in Germany to learn about intergroup contact and prejudice. Which of the following did their findings support?

- A. the contact hypothesis
- B. implicit bias
- C. xenophobia
- D. acculturation

Answer: A

187. Which cultural creation was a symbol of a cultural collision in Australia and France?

- A. the canoe
- B. the burkini
- C. female genital surgery
- D. sculptures made of paper

Answer: B

188. In their work with Portuguese children of European (majority) and African (minority) ethnic heritages, Guerra and colleagues found that:

- A. children who kept their ethnic identity had more positive views of out-group members
- B. children from the minority ethnic group preferred their ethnic identity label over a shared identity label
- C. children who shared a common group identity label had more positive views of out-group members
- D. children from the majority ethnic group preferred a shared group identity label over their ethnic

identity label

Answer: C

189. Who is more likely to experience skill discounting?

- A. a native born Canadian applying for a managerial position in Canada
- B. a native born Australian applying for a hospital internship in Australia
- C. a Peruvian doctor applying for a medical residency in the US
- D. a native born Columbian applying for a teaching position in Columbia

Answer: C

190. In their study on skill discounting among adult Canadians, Esses and colleagues found that several factors influenced applicant evaluation in their hypothetical hiring scenario. This included all the following EXCEPT:

- A. where the applicant received training
- B. the applicant's birthplace
- C. attitudes towards immigrants
- D. implicit bias

Answer: D

191. What is one stereotype that many Western educators have of Asian children?

- A. they actively engage in class discussions
- B. they are quiet and passive at school
- C. they are high achievers in language arts
- D. they are extroverted in all social contexts

Answer: B

192. In the Chinese worldview, knowing when to be quiet is a positive skill because:

- A. children defer to authority
- B. being quiet indicates concentration
- C. being quiet indicates children have learned to accommodate their behavior to specific social contexts
- D. it indicates that children are striving for uniqueness

Answer: C

193. What cultural values shape many Chinese children's decision not to directly confront or challenge a teacher in class?

- A. modesty and group cohesion
- B. self-expression
- C. assertiveness
- D. uniqueness

Answer: A

194. In their study that explored how cultural norms and practices shape perceptions of quietness among Chinese parents and teachers, Yamamoto and Li compared the perceptions of Chinese immigrant and native born European American children attending schools that had both Asian

teachers and European American teachers. They found that:

- A. Asian teachers evaluated quietness as a positive quality that connected to learning
- B. teachers rated Chinese immigrant children as quieter only in the Asian contexts
- C. teachers correlated quietness for Chinese immigrant children who attended European American schools with student learning
- D. there was no cultural mismatch in perceptions between either group of teachers

Answer: A

195. Social justice is a construct in which:

- A. no individual should receive equal treatment and access to resources in any society
- B. no individual should receive equal care and power in a society
- C. no individual should receive equal treatment, care, and access to resources in a society
- D. all individuals should receive equal treatment, care, and access to resources and power in a society

Answer: D

196. Which of the following is not an overriding theme and social justice?

- A. fairness
- B. access
- C. opportunity
- D. individual wealth

Answer: D

197. Which of the following IS NOT a difficulty some Moroccan immigrants are experiencing in their new home, Spain?

- A. acquiring good jobs
- B. language barriers
- C. an inability to travel to receive services
- D. living in affluent neighborhoods

Answer: D

198. According to Paloma and colleagues, what is one way to help ensure social justice?

- A. access to community services
- B. access to good paying jobs
- C. learning the language
- D. assimilating to their new home's cultural values, beliefs, and practices

Answer: A

199. What is a distinguishing factor of Tibetan immigrants?

- A. they demonstrate a personal and cultural connection and concern for social justice in their native homeland and new home
- B. they are subject to oppression and discrimination more than any other ethnic group
- C. they never received the support of social service agencies
- D. when living under Chinese rule they experienced little oppression

Answer: A

200. The meaning of the gesture 'thumbs up' is culture specific. What does the gesture 'thumbs up' mean in Nigeria?

- A. all is well
- B. I'm okay
- C. it is a rude gesture
- D. I'm very happy

Answer: C

201. The bow in many countries and cultural communities that practice this custom and gesture is a sign of:

- A. respect
- B. humility
- C. submission
- D. a simple greeting

Answer: A

202. Recent immigrants, students studying abroad, and fieldworkers engaging in fieldwork in foreign regions are all likely to experience:

- A. implicit bias
- B. culture shock
- C. cultural relativism
- D. assimilation

Answer: B

203. Intercultural competence is:

- A. the ability to communicate with people from different cultural communities
- B. the ability to adjust to a new cultural setting
- C. learning cultural practices very quickly
- D. being sensitive to new cultural customs and practices

Answer: A

204. Which of the following would reflect prevailing ideas in comparative social science about the nature of race?

- a. Race is fundamentally a matter of biology.
- b. Racial categories as such appear to be socially or culturally constructed.
- c. Since race is not really biological, it does not have political consequences.
- d. We live in a "post-racial" world.

Answer: B

205. Which of the following statements about gender would be judged least plausible by the social-scientific community?

- a. Gender is receiving greater attention from scholars in comparative politics than in the past.

- b. Gender and biological sex mean the same thing.
- c. Gender is more cultural whereas sex is more biological.
- d. Gender remains an important factor in politics.

Answer: B

206. Which of the following claims is not true, according to social scientists?

- a. Gender and ethnicity are both constructed categories.
- b. Gender and ethnicity intersect with political party formation in precisely the same way.
- c. One way to try to empower members of disadvantaged groups is through institutional design strategies like quota systems and reserved seats.
- d. Gender and ethnicity have a complicated and varying relationship with the major strategies used to empower members of diverse groups.

Answer: B

207. Why do social scientists believe that, even after modern progress, discrimination on the basis of race, ethnicity, and gender persists?

- a. Evidence from methods like audit studies reveal ongoing discrimination.
- b. Different groups have measurable differences in various socioeconomic outcomes.
- c. A number of members of disadvantaged groups report experiencing discrimination.
- d. All of the above

Answer: D

208. Which of the following is a type of gender empowerment discussed in this chapter?

- a. Self-esteem empowerment
- b. Political empowerment
- c. Biological empowerment
- d. Sociological empowerment

Answer: B

209. What is the core explanation that Mala Htun gives for the fact that gender-based parties are less common than ethnic parties?

- a. Ethnic categories cut across other categories that serve as the basis for party formation.
- b. Gender categories cut across other categories that serve as the basis for party formation.
- c. Ethnic groups are simply more culturally disposed to form parties.
- d. Patriarchy

Answer: B

210. Which of the following ideas is one of the factors cited in Donna Lee Van Cott's argument about the creation of ethnic parties in Latin America?

- a. Ethnic parties emerged because of charismatic leaders.
- b. Ethnic parties emerged in part because archaeological evidence made people realize who they "really are."
- c. Ethnic parties emerged in part because decentralization created new political opportunities while old bases of mobilization for marginalized groups were weakened.

d. Ethnic parties emerged because of dependent economic development.

Answer: C

211. Which of the following factors plays a prominent role in Joanne Nagel's account of the dramatic growth of the share of the U.S. population self-identifying as "Native American" or "American Indian" in the mid- to late twentieth century?

- a. Independent monitoring by the EU
- b. "Red Power" Activism
- c. The decline of the Democratic Party
- d. The decline of the Republican party

Answer: B

212. Which sorts of actors, among others, does Mona Lena Krook's argument lead us to expect to play an important role in determining whether gender quotas will be adopted in a given polity?

- a. Rural laborers, religious leaders, and the media
- b. Politicians acting strategically, transnational organizations, and activists
- c. Economic classes, trade unions, and the bourgeoisie
- d. None of the above

Answer: B

213. Which of the following is frequently cited by comparative politics scholars to influence the likelihood of the formation of ethnic parties?

- a. Judicial review
- b. Terrorism
- c. Existing interest groups and sources of political cleavage in the society in question
- d. None of the above

Answer: C

214. Why do some scholars in comparative politics think that political empowerment might lead to other forms of empowerment?

- a. All of economics and culture is based on politics.
- b. You can have an effect on economics only if you have political power.
- c. You can only impact culture if you have political power.
- d. Some research shows that women who hold office are, on average, more inclined than male office-holders to value equity highly.

Answer: D

215. Which of the following countries has seen significant improvement in women's rights over the last several decades?

- a. Brazil
- b. Iran
- c. Saudi Arabia
- d. None of the above

Answer: A

216. Which of the following is probably not a factor influencing the likelihood that ethnic parties will be formed?

- a. Ethnic demographics
- b. History of conflict between groups
- c. Presence or absence of other bases of cleavage
- d. Climate

Answer: D

217. Which of the following would not be an example of a social movement mobilizing around an ethnic identity?

- a. Iran's "Green Revolution"
- b. The French Revolution
- c. The Landless Movement in Brazil
- d. None of the above

Answer: D

218. According to the perspective of this chapter, which of the following claims is not demonstrably true?

- a. Institutional design solutions to problems of group inequality are often effective.
- b. Social movements can be useful ways to address inequality.
- c. Social movements, political parties, and institutional design responses to group inequalities often go hand in hand.
- d. You can have social movements or parties, but you can't have both.

Answer: D

219 is the realization of Divinity in man

- a. Psychology
- b. Science
- c. Religion
- d. Metaphysics

Answer: C

220. Rita means

- a. Legal order
- b. Moral Order
- c. Official order
- d. Cosmic Order

Answer: D

221. Which among the following is not accepted by Karma Doctrine

- a. Karma Phala
- b. Karma Samskara
- c. Rebirth

d. Materialism

Answer: D

222. The sum total of Papa and Punya in the life of man constitute

- a. Ignorance
- b. Desire
- c. Karma Samskara
- d. Karma neeti

Answer: C

223. The cause of Rebirth according to Indian Philosophy is

- a. Karmic Bondage
- b. God
- c. Knowledge
- d. Death

Answer: A

224. Which among the following is not the cause of ignorance

- a. Liberation
- b. Bondage
- c. Rebirth
- d. Transmigration

Answer: A

225. According to Indian philosophy 'Moksha' means liberation from

- a. Life
- b. Enemy
- c. Diseases
- d. Bondages

Answer: D

226. The word 'Yoga' means

- a. Union of impermanent self with permanent self
- b. Union of life with death
- c. Union of Day with night
- d. Union of body with mind

Answer: A

227. The origin of Indian philosophical thought is in

- a. Systems
- b. Vedas
- c. Ithihasas
- d. Puranas

Answer: B

228. The word 'Veda' originated from the word

- a. Vayu
- b. Vyasa
- c. Vid
- d. Vip

Answer: C

229. Vedas are also called as

- a. Smriti
- b. Chinda
- c. Sruthi
- d. Pravrittis

Answer: C

230. Which among the following is not a Veda

- a. Rig
- b. Sama
- c. Yajur
- d. Sankhya

Answer: D

231. There are -----Vedas

- a. 2
- b. 3
- c. 4
- d. 5

Answer: C

232. The word 'Rik' means

- a. Verse
- b. Song
- c. Prose
- d. None of the above

Answer: A

233. The word 'yajur' means

- a. Verseb Prose.
- c. Song
- d. Grammar

Answer: B

234. The word 'Sama' means

- a. Verse

- b Prose.
 - c. Song
 - d. Grammer
- Answer: C

235. Veda consists of----- parts

- a. 10
- b. 12
- c. 4
- d. 6

Answer: C

236. The part which consists of hymns is called

- a. Mantra
- b. Brahmana
- c. Aranyaka
- d. Upanishad

Answer: A

237. The part which consists of directions for performing sacrifices is called

- a. Mantra
- b. Brahmana
- c. Aranyaka
- d. Upanishad

Answer: B

238. The part which consists of mystic interpretation of Brahmana is called

- a. Mantra
- b. Brahmana
- c. Aranyaka
- d. Upanishad

Answer: C

239. The end portion of Veda is called

- a. Mantra
- b. Brahmana
- c. Aranyaka
- d. Upanishad

Answer: D

240. Which one of the following is not a Vedanga

- a. Vyakarana
- b. Jyothisha
- c. Jathaka
- d. Niruktha

Answer: C

241. The religion which believe in many Gods is called

- a. Polytheism
- b. Henotheism
- c. Monotheism
- d. Monism

Answer: D

242. The religion which believe in one God at a particular period is called

- a. Polytheism
- b. Henotheism
- c. Monotheism
- d. Monism

Answer: B

243. The religion which believe in one God is called

- a. Polytheism
- b. Henotheism
- c. Monotheism
- d. Monism

Answer: C

244. The religion which believe in one Ultimate Reality is called

- a. Polytheism
- b. Henotheism
- c. Monotheism
- d. Monism

Answer: D

245. The word 'Theism' means

- a. Belief in Caste
- b. Belief in Creed
- c. Belief in Race
- d. Belief in God

Answer: D

246. Qualified Monism mentioned about

- a. Personalistic view of Brahman
- b. Impersonalistic view of Brahman
- c. Both
- d. None of the above

Answer: A

247. Para Brahman is

- a. Saguna Brahman

- b. Nirguna Brahman
- c. Both None

Answer: B

248. Apara Brahman is

- a. Saguna Brahman
- b. Nirguna Brahman
- c. Both None

Answer: A

249. Upanishads are also called

- a. Vedanga
- b. Vedanta
- c. Vedabhashya
- d. Vedasadana

Answer: B

250. Upanishad teaches

- a. Realism
- b. Idealistic Monism
- c. Monotheism
- d. Pragmatism

Answer: B

251. The word Brahman came from the word

- a. Brhanthala
- b. Brihaspati
- c. Brh
- d. Brj

Answer: C

252. According to Acosmic view

- a. Brahman alone is real
- b. The world alone is real
- c. Brahman & World are real
- d. Brahman & World are unreal

Answer: A

253. According to Cosmic view

- a. Brahman alone is real
- b. The world alone is real
- c. Brahman & World are real
- d. Brahman & World are unreal

Answer: D

254. The power of Illusion is called

- a. Brahman
- b. Maya
- c. Atman
- d. Sandhya

Answer: B

255. Who among the following is the proponent of Advaita Vedanta

- a. Sri Krishna
- b. Kanada
- c. Sri Sankaracharya
- d. Ramanuja

Answer: C

256. Who among the following is the proponent of Visisht Advaita

- a. Gautama
- b. Kanada
- c. Sri Sankaracharya
- d. Ramanuja

Answer: C

257. Individual soul is called

- a. Jivatman
- b. Paramatman
- c. Manas
- d. Indriya

Answer: A

258. Which among the following is not a Kosa

- a. Annamaya Kosa
- b. Pranamaya Kosa
- c. Santhoshamaya Kosa
- d. Manomaya Kosa

Answer: C

259. Annamaya Kosa is called

- a. Bodily Sheath
- b. Vital Sheath
- c. Mental Sheath
- d. Intellectual Sheath

Answer: A

260. Pranamaya Kosa is called

- a. Bodly Sheath
- b. Vital Sheath
- c. Mental Sheath
- d. Intellectual Sheath

Answer: B

261. Manomaya Kosa is called

- a. Bodly Sheath
- b. Vital Sheath
- c. Mental Sheath
- d. Intellectual Sheath

Answer: C

262. Vijnanamaya Kosa is called

- a. Bodly Sheath
- b. Vital Sheath
- c. Mental Sheath
- d. Intellectual Sheath

Answer: D

263. Anandamaya Kosa is called

- a. Bodly Sheath
- b. Vital Sheath
- c. Sheath of Bliss
- d. Intellectual Sheath

Answer: C

264. First chapter of Bhagavad Gita is

- a. Samkhya Yoga
- b. Arjuna vishada Yoga
- c. Dhyana Yoga
- d. Karma Yoga

Answer: B

265. Which chapter is called Viswarupa Darsana Yoga

- a. One
- b. Thirteen
- c. Eighteen
- d. Eleven

Answer: C

266. Performing one's duties in accordance with his position in the society is called

- a. Nityakarma
- b. Kamyakarma

- c. Swadharna
- d. Anyadharna

Answer: C

267. Performing one's duties without any selfish motive is called

- a. Karma phala
- b. Nishkama karma
- c. Karma samskara
- d. Naimittika karma

Answer: B

268. 'Path of action in inaction' is the contribution of

- a. Upanishads
- b. Samkhya yoga
- c. Buddhism
- d. Bhagavad Gita

Answer: B

269. Path of action towards selfrealization is called

- a. Karma marga
- b. Jnana marga
- c. Bhakti marga
- d. Raja marga

Answer: A

270. Path of wisdom towards selfrealization is called

- a. Karma marga
- b. Jnana marga
- c. Bhakti marga
- d. Raja marga

Answer: B

271. Path of devotion towards selfrealization is called

- a. Karma marga
- b. Jnana marga
- c. Bhakti marga
- d. Raja marga

Answer: C

272. Bhagavad Gita provides a synthesis of

- a. Jnana & Bhakti
- b. Jnana & karma
- c. Karma, bhakti & Jnana
- d. None of the above

Answer: C

273. Purification of mind through Nishkama karma is called

- a. Prana sudhi
- b. Chitta sudhi
- c. Tapas
- d. Dhyana

Answer: B

274. 'Yoga karmasu kausalam' is the ideology of

- a. Advaita Vedanta
- b. Visishta Advaita
- c. Bhagavad Gita
- d. Ramayana

Answer: C

275. The person with steady mind is called

- a. Sthitaprajna
- b. Prajna sree
- c. Vanaprastha
- d. Grahatha

Answer: A

276. Yogi satisfied with the thoughts of

- a. Self
- b. Body
- c. Sense organ
- d. Mind

Answer: A

277. The way towards self realization according to Bhagavad Gita is

- a. Escape from sorrow
- b. Escape from household duties
- c. Nishkama karma
- d. Swadyaya

Answer: C

278. According to Bhagavad Gita 'Preservation of world of humanity' means

- a. Sthitha prajna
- b. Environmental ethics
- c. Mukti marga
- d. Loka samgraha

Answer: D

279. Concept of 'lokasamgraha' aims at

- a. Welfare of humanity
- b. protection of Environment
- c. Presevation of Biosphere
- d. Preservation of Nature

Answer: A

280. Social dimension of Bhakti is called

- a. Asrama
- b. Varna
- c. Lokasamgraha
- d. Sthithaprajna

Answer: C

281. Systems which rejected the authority of Vedas are called

- a. Orthodox systems
- b Heterodox system
- c. Theism
- d. Atheism

Answer: B

282. Systems which accepted the authority of Vedas are called

- a. Orthodox systems
- b Heterodox system
- c. Theism
- d. Atheism

Answer: A

283. Orthodox systems are otherwise known as

- a. Astika darsana
- b. Nastika Darsana
- c. Theism
- d. Atheism

Answer: A

284. Heterodox systems are otherwise known as

- a. Astika darsana
- b. Nastika Darsana
- c. Theism
- d. Atheism

Answer: B

285. Which among the following is not a Heterodox system

- a. Charvaka materialism
- b. Jainism

- c. Buddhism
- d. Purva mimamsa

Answer: D

286 Which among the following is not a Heterodox system

- a. Charvaka materialism
- b. Advaita Vedanta
- c. Buddhism
- d. Jainism

Answer: B

287. Which among the following is not a Heterodox system

- a. Charvaka materialism
- b. Jainism
- c. Nyaya Vaisesika
- d. Buddhism

Answer: C

288. Which among the following is not a Heterodox system

- a. Samkhya yoga
- b. Jainism
- c. Buddhism
- d. Charvaka materialism

Answer: A

289. Which one of the following is a Heterodox system

- a. Nyaya
- b. Buddhism
- c. Samkhya
- d. Vaisesika

Answer: A

290. Which one of the following is a Heterodox system

- a. Jainism
- b. Yoga
- c. Purva Mimamsa
- d. Vaisesika

Answer: A

291. Which one of the following is a Heterodox system

- a. Advaita Vedanta
- b. Nyaya
- c. Charvaka Materialism
- d. Vaisesika

Answer: C

292. Which one of the following is an Orthodox system

- a. Nyaya
- b. Jainism
- c. Buddhism
- d. Lokayata

Answer: A

293. Which among the following is not an Orthodox system

- a. Nyaya
- b. Vaisesika
- c. Samkhya
- d. Buddhism

Answer: D

294. Which among the following is not an Orthodox system

- a. Charvaka Materialism
- b. Uttara Mimamsa
- c. Purva Mimamsa.
- d. Yoga

Answer: A

295. Uttara Mimamsa is otherwise known as

- a. Purva Mimamsa
- b. Mimamsa Sutra
- c. Advaita Vedanta
- d. Upanishad

Answer: C

296. Charvaka Materialism is otherwise known as

- a. Advaita Vedanta
- b. Lokayata
- c. Lokasamgraha
- d. Visishta Advaita

Answer: B

297. Which one of the following elements is not accepted by Charvaka materialism

- a. Earth
- b. Air
- c. water
- d. Ether

Answer: D

298. How many pramanas are accepted by Charvaka materialism

- a. One
- b. Three
- c. Four
- d. Six

Answer: A

299. Name the Pramana accepted by Lokayata

- a. Inference
- b. Comparison
- c. Perception
- d. All the above

Answer: C

300. Which among the following is accepted by Charvaka materialism

- a. God
- b. Matter
- c. Soul
- d. Rebirth

Answer: B

301. Last chapter of Bhagavad Gita is called

- a. Mokshasamnyasa Yoga
- b. Samnyasa Yoga
- c. Bhakthi Yoga
- d. Vibhuti Yoga

Answer: A

302. Which among the following are Parama Purusharthas according to Indian Philosophy

- a. Dharma & Moksha
- b. Artha & Kama
- c. Both a & b
- d. None of the above

Answer: C

303. Purusharthas accepted by Charvaka materialism

- a. Artha & Kama
- b. Dharma & Moksha
- c. Dharma and Kama
- d. Artha & Moksha

Answer: A

304. Which one among the following is called 'Indian Hedonism'

- a. Buddhism
- b. Charvaka Materialism

- c. Jainism
- d. Nyaya

Answer: B

305. Who among the following is the Author of 'Sarva Darsana Samgraha'

- a. Gautama Buddha
- b. Pathanjali
- c. Jaimini
- d. Brihaspati

Answer: D

306. Who among the following is the founder of Buddhism

- a. Rishabha Deva
- b. Vardhmana Mahavira
- c. Gautama Buddha
- d. Brihaspati

Answer: C

307. Which one among the following is a Buddhist sect

- a. Digambara
- b. Mahayana
- c. Swethambara
- d. Avadhuta

Answer: B

308. Buddhists scripture is known as

- a. Nigama
- b. Pitika
- c. Agama
- d. Karika

Answer: B

309. Which one among the following is not a Pitika

- a. Vishesha
- b. Sutta
- c. Vinaya
- d. Abhidamma

Answer: A

310. Central teaching of Buddha consist of Truths

- a. Three
- b. Two
- c. Five
- d. Four

Answer: D

311. Which one among the following is not a Noble Truth of Buddha

- a. Dukha Marga
- b. Sarvam Dukham
- c. Dukha Nirodha
- d. Dukha Karana

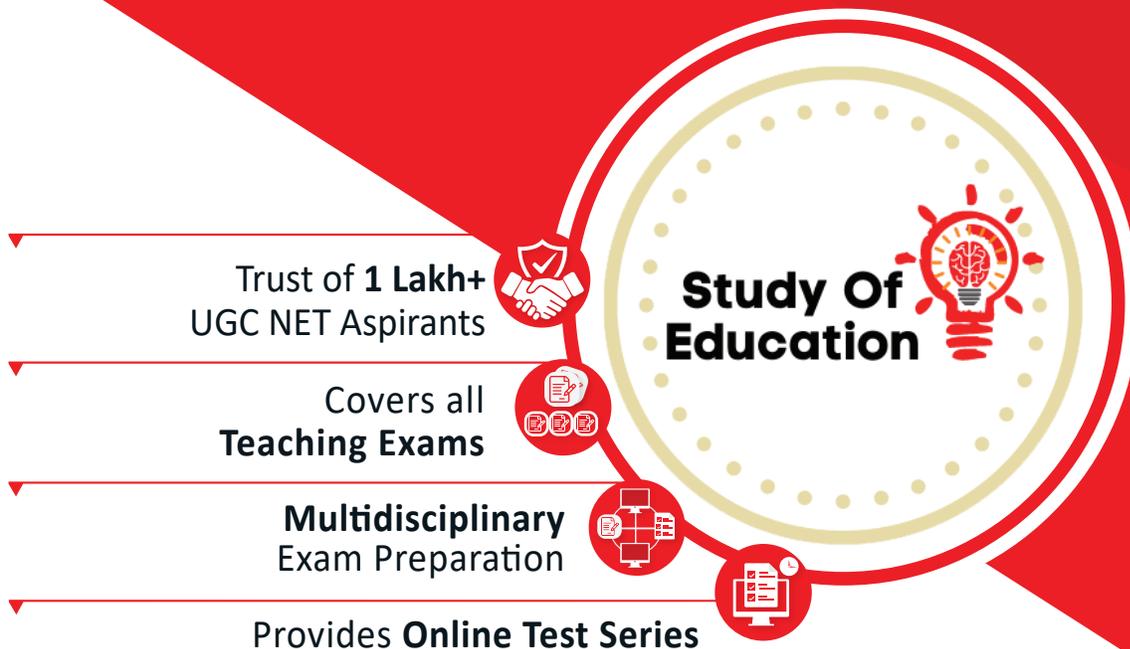
Answer: A

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