

**Unit -1**

**TEACHING APTITUDE**  
**UGC NET STUDY MATERIALS**

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[\(1\) video lecture,](#)

[\(2\) specially prepared reading material that can be downloaded/printed](#)

[\(3\) self-assessment tests through tests and quizzes and](#)

[\(4\) an online discussion forum for clearing the doubts.](#)

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[Based on the Sense Organs Involved](#)

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For example - actual objects, models, pictures, charts, maps, flashcards, flannel board, bulletin board, chalkboard, overhead projector, slides, etc. Out of these, blackboard and chalk are the commonest ones.

Audio-Visual Aids

Based on Projection or Show

Based on the Experience Provided by an Aid

## EVALUATION SYSTEM

UGC defined as "Evaluation is the process of making judgments based on evidences and interpretations gathered through examination and assessment and on the basis of agreed upon criteria."

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Grades and Grade Points

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## CONCEPT OF TEACHING

Teaching is a complex process that brings a socially desirable behavioral change in a person. In traditional concept, teaching is the act of imparting instructions to the learners in the classroom situation. modern concept, teaching is to cause the pupil to learn and acquire the desired knowledge, skills and also desirable ways of living in society. It is a process in which learner, teacher, curriculum and other variables are organized in a systematic and psychological way to attain some pre-determined goals.

Teaching is a part of the teaching-learning process. It is required to bring specific changes in a person according to the need of his society and environment in which he is living. 'Teaching is not an act as it is dynamic in nature, so it is termed as a process. It is also not a fundamental concept as it is greatly influenced by social and human factors.

Some Expert Views about Concept of Teaching:

1. **Ryburn's view:** "Teaching is a relationship which keeps the child to develop all his powers."
2. **Burton's view:** "Teaching is the stimulation guidance, direction, and encouragement of learning."
3. **Smith's view:** In words of B.O. Smith, "Teaching is a system of actions intended to produce learning."

## Objectives of Teaching:

Major objectives of teaching are as follows:

- To bring desired changes in pupils.
- To shape behavior and conduct.
- Acquisition of knowledge
- To improve the learning skills of students.
- Formation of belief.
- To provide a social and efficient member of society.

## Nature and Characteristics of Teaching

Nature of teaching may be described as:

- a) **Dynamic, Social, and Humane:** Teaching is not a fundamental concept because it is greatly influenced by social and human factors that are dynamic in themselves.

- b) **Both Art and Science:** Teaching is both art and science. It calls for the exercise of talent and creativity making it an art and involving repertoire of techniques, procedures, and skills that can be studied systematically, described and improved making it science.
- c) **Diverse in Application:** In application, teaching is of diverse nature. It may have various forms as formal, informal, directional, instructional, formational, training, conditioning, in- doctrination, talking, showing, doing, remedial, etc.

## Characteristics of Teaching may be described as:

- a) **System of actions:** Teaching is a system of actions varied in form and related to content and pupil behaviour under the prevailing physical and social conditions.
- b) **Professional activity:** It is a professional activity involving a teacher and student with a view to the development of students' personality. Professionalism helps students in being regular and making harmony with their objects towards those they are concentrated.
- c) **Subjected to analysis and assessment:** Teaching can be analysed and assessed and analysis and assessment provide feedback for further improvement.
- d) **Interactive process:** Teaching is highly dominated by communication skills. Teaching is an interactive process carried with purpose and objectives.
- e) **Specialized Task:** It is a specialized task and may be taken as a set of skills for realization of certain objectives.
- f) **Collection of various modes:** Teaching is a collection of various modes of itself. It is a broader term. Terms like conditioning, training, instruction, indoctrination denote a kind of teaching. They are a part of teaching but not a synonym with teaching. These are various modes of teaching contributing to teaching.

## Aim of Teaching

The aims of teaching with respect to its various modes, are as follows-

- Teaching - To bring changes in the behaviour of students.
- Conditioning - To improve the learning skills of students.
- Training - Shaping behaviour and conduct.
- Instruction - Acquisition of knowledge.
- Indoctrination - Formation of belief.

## Level of Teaching

We all know that teaching is a purposeful activity. Through teaching, a teacher brings a desirable

change in the learners. Both the concepts of teaching and learning are interrelated to each other. The development of the all-round personality of the learner is the final goal of teaching and learning. During teaching, an interaction takes place between an experienced person (teacher) and an inexperienced one (student). Here the main aim is to bring change in the behavior of the student.

Teachers teach students at three levels. They have to keep in mind about the developmental stage of the learners so that desired educational objectives can be achieved. These three levels are

- a) **Memory level:** Thoughtless teaching
- b) **Understanding level:** Thoughtful teaching
- c) **Reflective level:** Upper thoughtful level

## Memory Level of Teaching (MLT)

The Objective of the Memory Level of teaching is Just to impart information or knowledge to the learner. This knowledge or information is factual in nature, which is acquired through a mechanical process (i.e. memorization or rote learning).

Memory Level of teaching covers only the knowledge-based objective of Bloom's taxonomy where the students learn to identify, recall, or remember the objects, events, ideas, and concepts and retain them in memory. Memory level teaching lacks insight. Psychologically, it is cognitive level teaching.

### Important Points of Memory Level of Teaching:

1. It is supported by Herbart Theory of Appreciation, which states that this level of teaching seeks the learner to acquaint himself with the relationship between the facts and principles.
2. It is the first stage of teaching to get factual information.
3. Useful for children in the lower classes because of their intellect is under development, and they have a rote memory.
4. MLT aims to get factual information, to train memory, to retrain the learning material in-memory storage, to reproduce and recognize the learned information when required
5. Teacher dominated methods are used- like drill, review, and revision and asking questions.
6. The evaluation system mainly includes oral, written, and essay-type examinations.
7. Good memory includes rapidity in learning, stability of retention, rapidity in recalling, and ability to bring only desirable contents to the conscious level.
8. Memory level teaching acts as the first step for understanding and reflective levels of teaching. It is a pre-requisite for understanding level teaching.

## Merits/ Advantages and Importance of Memory Level of Teaching:

- Useful for young children
- Useful for the acquisition of facts, information of models and structure
- Help children learn a new concept
- Useful for slow learners
- The basis for understanding and reective level of teaching.
- 

## Demerits / Disadvantages of Memory Level of Teaching:

- Not suitable for higher classes
- Use of rote memory
- Dominance of teacher
- Little interaction in the classroom
- No room for initiation and self-learning for the students
- Not intrinsic motivation
- Problem of classroom management
- Loss of retention and recall

## Understanding Level of Teaching (ULT)

It comes in between the memory level and reflective level. This stage of teaching involves a moderate level of thoughtful behaviour. It is a pre-requisite for the reflective level teaching-learning, which requires the use of higher mental processes. The term “understanding” literally means to comprehend, to grasp, and to have knowledge of, to learn, to interpret and to infer, etc. Morris, L. Bigge, in his book, ‘Learning theory for Teachers’, defines that understanding level teaching, “seeks to acquaint students with the relationships between generalizations and particulars, between principles and solitary facts, and which show- the use to which the principles may be applied.”

Herbart mentions three forms of mental reality which play an important role in teaching-learning at the understanding level. They are **sense impressions**, **images**, and **elective elements of pleasure and pain**. In Herbart’s arrangements, the teacher is conceived as an architect as well as the builder of the minds of the students by manipulating ideas to construct a student’s circle of thought.

## He advocated six steps of teaching:

- preparation,
- presentation,
- comparison,
- generalization,

- application, and
- evaluation

**Morrison** very clearly stated that understanding is not merely being able to recall something; it is not mere generalization deduced from specific facts; it is an insight into how it may be used in future situations. Morrison asserted that the outcome of all teaching is ‘Mastery’ and not memorization of facts. He proposed a unit plan, each unit representing an insight which is relatively complete in itself.

## Important points:

1. Morrison is the main proponent of understanding level of teaching.
2. It is ‘memory plus insight’ as it goes beyond just memorizing facts. It focuses on the mastery of the subject.
3. It makes pupils understand generalizations, principles, and facts.
4. It provides more and more opportunities for the students to develop ‘intellectual behaviour’.
5. It provides an active role for both the pupil and the teacher for the assimilation of facts.
6. The evaluation system mainly includes both essay and objective-type questions.

## Merits/ advantages Understanding level of Teaching (ULT):

- Effective learning
- Development of different cognition abilities
- Sets stages for entering into the Reflective Level of Teaching
- Effective classroom interaction

## Demerits or disadvantages of Understanding Level of Teaching (ULT):

- Ignores higher cognitive abilities
- Less emphasis on intrinsic motivation
- No individualized learning
- Teacher centered

## Reflective Level of Teaching

This Level of teaching is the highest level of teaching-learning activity. It is the stage of learning when students do not merely repeats and revise or answer the questions as

asked for; nor do they only understand, learn, interrelate or interpret the concepts but also they ponder upon, contemplate and pay serious thoughtful consideration to the presented contents.

The main objectives of Reflective Level of Teaching are:

- To develop insight into the learner to solve problems.
- To develop rational and critical thinking in the students.
- To develop the ability of independent thinking and decision making in the students.

## Important Points:

1. Hunt is the main proponent of reflective level of teaching.
2. It is the highest level of teaching and includes both ULT and MLT.
3. It is problem-centric approach of teaching.
4. The students are assumed to adopt some sort of research approach to solve the problem.
5. Classroom environment is to be sufficiently 'open and independent'. The learners are self-motivated (intrinsic) and active.
6. The aim is to develop the reflective power of learners so that they can solve problems of their lives by reasoning, logic, and imagination, and lead successful and happy lives.
7. The pupil occupies the primary place and teacher assumes the secondary place.
8. Essay-type test is used for evaluation. Attitude, belief, and involvement are also evaluated.

## Merits or Advantages of Reflective Level of Teaching:

- It is the most thoughtful mode of operation.
- Learner-centered approach
- Development of problem-solving ability
- Useful for gifted children.
- Provides maximum exhibility
- Self-motivation
- Development of creativity

## Demerits of Reflective Level of Teaching:

- It is not suitable for lower classes

- It is a time-consuming process.
- It is not applicable for dull students.
- There is an excess burden to the teacher.

## Requirements of Teaching

The teaching process involves the following variables.

### 1. Dependent Variable

The student is a dependent variable. He is subjected to changes and developments through the efforts of the teacher and teaching process. In the process of teaching, the dependent variable plays the functional or active part.

### 2. Independent Variable

The teacher is an independent variable. He is responsible for the functioning of students, the dependent variables. He is free to act in the process while students are quite dependent on him. The teacher plans, organizes, leads and controls the process of teaching. Like dependent variables, independent variables also play the functional or active part.

### 3. Intervening Variables

There is a need of desirable interaction between the dependent and the independent variable to achieve the goals of teaching. This role is played by the intervening variables. The content of teaching, methods and techniques, tactics and strategies management of instructional material and teaching environments, etc., are the Intervening Variables.

## Basic Requirements of Teaching

Basic requirements of teaching are:

1. All three variables of teaching
2. Professionalism
3. Suitable environment
4. Teacher-student relationship
5. Student's discipline

6. Teacher's devotion to teaching, and also, on the other hand, student's devotion to learning.

## CONCEPT OF LEARNING

Learning is a key concept in human behavior. It is the axiom of all teaching and learning. It includes everything the learner does and thinks. It influences the acquisition of information, attitudes and beliefs, goals, achievements and failures, behavior, both adaptive and maladaptive, and even personality traits.

Learning has been defined as a relatively permanent change in behavior that occurs as a result of experience and practice. Any good definition of learning should have three elements:

1. Learning is a change in behavior;
2. This change takes place through experience or practice. Changes due to growth, maturation and inquiry cannot be considered as learning.
3. The occurred change must be relatively permanent, i.e. the learned response must last for a fairly long time.

### Meaning and Definition

Various psychologists and educationists have defined the concept of learning. Following are some of the definitions given by them:

### Learning as a Process

**Hilgard** an exponent in the field of learning says, "Learning is the process by which an activity originates or is changed through training procedures."

**Bernard** takes learning as a process by which an organism satisfying the motivation adopts or adjusts to situations in which it must modify its behavior in order to overcome obstacles and barriers.

### Learning as a Change in Performance

**McGeoch**- a renowned comparative psychologist says, "Learning as we measure it is a change in performance as a function of practice."

Walker, E.L. (1976) considers “Learning as a relatively permanent change in performance that occurs as a result of experience, and is not attributable to maturation, fatigue or motivation.

## Learning as Acquisition and Retention

Crow and Crow opine “Learning involves the acquisition of habits, knowledge and attitudes.

Skinner also includes in learning both acquisition and retention.

## NATURE OF CHARACTERISTICS OF LEARNING

If we analyse the different definitions and interpretations of learning, the process and products of learning and different factors of learning we can form some idea about the nature of learning. To sum up, learning has the following characteristics:

- 1) **Learning is the modification of Behavior**
- 2) **Learning is Purposive:** - McDougall stresses the purposeful nature of learning. In other words, learning is a goal-directed activity.
- 3) **Learning is a continuous Process**
- 4) **Learning is a Universal Phenomenon:** - Learning takes place everywhere by all organisms in all cultures. It is an activity that is taken up by all the living creatures.
- 5) **Learning is Progressive and Developmental**
- 6) **Learning is Transferable:** - Transfer in learning is feasible. Material, things and subject matter learned in one situation may facilitate or inhibit learning in the other situation
- 7) **Learning includes all the three aspects of Human Behaviour**

## TYPES OF LEARNING

We can classify learning in a dozen of ways from general to the specific. Making general distinctions, psychologists have divided learning categories:

1. **Conditioning:** - Generally speaking, the individual has to learn about the stimulus or the response/group of responses. If we learn something about a stimulus, it is perceptual learning. But when we learn to make a particular response or a group of responses, it is called response learning. Response learning could be single or multiple-response learning. When an individual learns a single response associated with a specific stimulus or a stimulus situation, it is conditioning. Conditioning, where using the sequence of pairing a conditional stimulus (CS) with an unconditioned stimulus (US), a conditioned response (CR) is learned. In this way, a number of conditional responses can be learned. This type of conditioning occurs in human as well as animal subject, single-response learning can be subdivided into **classical conditioning**,

**operant learning, and aversive conditioning.**

2. **Motor Learning:** -It is also labeled as psychomotor learning or skill learning. This includes all kinds of things, people learn to do, such as eating with spoon or fork, swimming, typewriting, drives a car etc. Learning of such skills depends upon maturity, sensory-motor co-ordination and integration of the responses related to the intended skill learned at initial preliminary stages.

3. **Discrimination Learning:** -We see that animal and human beings discriminate between a number of things in daily life. The general feature of this type of learning is that the subject has to differentiate between the two stimuli which occur to him simultaneously or in a close succession and one or the other is frequently rewarded or punished. Differentiation between mother and a stranger, a dog and a doll, taste of learning. Three important situations of discrimination learning are: *probability learning, incidental learning and reversal learning.*

4. **Verbal learning:** - It is the most important kind of learning for human beings because it involves words and formal education situations, and even the most informal learning in older children and adults occur by the verbal route. It also provides an important link between elementary nonverbal learning processes on one hand and learning of language and thought on the other.

5. **Concept Learning:** -It is more specifically meant for human subjects. Learning a concept is learning to react to some common property/properties in a group of objects. In children, concept learning starts at a very young age. At a very early stage they try to learn about various stimuli of the environment and attach verbal labels for them, such as house, wood, fruit, man, girl etc. Once the concepts are learned, they are manipulated in language and thinking. At higher stage of learning, power of thinking and judgment is developed, and the individual becomes capable of solving problem in his own way.

6. **Problem –Solving:** - This is highest level of learning. In problem solving learning, a problem is given to the organism, which discovers some of its relationship with its environment by some sort of manipulation. In fact, problem-solving in human beings and higher animals like chimpanzees is certainly more than operant conditioning. Human beings very occasionally in solving their problems by more trial and error method. They make use of prior verbal learning; they evaluate the whole situation, employ verbal reasoning, and sometimes also use trial and error activity, and ultimately some solution to the problem is found out. **Gestalt Psychologists** have made a series of experiments in this direction.

## Characteristics of Learning

The concept of learner's characteristics is used in the sciences of learning and cognition to designate a target group of learners and define those aspect of their persona, academic, social or cognitive self that may influence how and what they learn. Learner's characteristics are important for instructional designer as they allow them to design and create tailored instruction for a target group. It is expected by taking account of characteristics of earners, more efficient, effective, and/or motivating instructional materials can be designer and developed.

Learner's characteristics can be

- Personal,**
- Academic,**
- Social and emotional, and**
- Cognitive**

**Personal** characteristics often relate to demographic information such as age, gender, maturation, language, social economic cultural background and specific needs of a leader group such a particular skills and disabilities for and/or impairments to learning.

**Academic** characteristics are more education and/or learning related such as learning goals of an individual or a group, prior knowledge, educational type, and educational level.

**Social and emotional** characteristics relate to the group or individual with respect to the group. Ex. of social/emotional characteristics are group structure, place of the individual within group, sociability, self-image, feelings of self-efficiency and mode etc.,

## CHARACTERISTICS OF ADOLESCENT LEARNERS

The characteristics of Adolescent learners can be explained on the basis of the following factors:

1. **Physical**
2. **Intellectual**
3. **Social**
4. **Emotional and Psychological**
5. **Moral**
  - Restlessness and fatigue due to hormonal changes
  - A need for physical activity because of increased energy
  - Developing sexual awareness, and often touching and bumping into others.
  - A concern with changes in body size and shape.
  - Physical vulnerability resulting from poor health/dietary habits or engaging in risky behaviours.

- Bodily changes that may cause awkward, uncoordinated movements.

## Intellectual (Academic) Development:

- Moving from concrete to abstract thinking.
- An intense curiosity and wide range of intellectual pursuit, few of which are sustained over the long term.
- High achievement when challenged and engaged.
- Prefers active over passive learning experiences.
- Interest in interacting with peers during learning activities.
- An ability to be self-reflective.
- Demand the relevance in learning and what is being taught.
- Developing the capacity to understand higher levels of humor, some of which may be misunderstood by adults to be sarcastic or even aggressive

## Social Development:

- Experimenting with ways of talking and acting as part of searching for a social position with peers
- Exploring questions of racial and ethnic identity and seeking peers who share the same background.
- Exploring questions of sexual identity in visible or invisible ways.
- Feeling intimidated or frightened by the initial middle school experience.
- Liking fads and being interested in popular culture.
- Overreacting to ridicule, embarrassment, and rejection.
- Seeking approval of peers and others with attention-getting behaviours.
- As interpersonal skills are being developed, fluctuates between a demand for independence and a desire for guidance and direction

## Emotional and Psychological Development

- 
- Needing to release energy, with sudden outbursts of activity.
- A desire to become independent and to search for adult identity and acceptance
- Self-consciousness and being sensitive to personal criticism.
- Concern about physical growth and maturity.
- A belief that their personal problems, feelings, and experiences are unique to themselves.
- Overreacting to ridicule, embarrassment, and rejection.
- Seeking approval of peers and others with attention-getting behaviours.

## Moral Development:

- An understanding of the complexity of moral issues (question values, cultural expressions, and religious teachings).
- Being capable of and interested in participating in democracy
- Impatience with the pace of change and underestimating how difficult it is to make social changes.
- Needing and being influenced by adult role models who will listen and be trustworthy.
- Relying on parents and important adults for advice but wanting to make their own decisions.
- Judging others quickly but acknowledging one's own faults slowly.
- Show compassion and are vocal for those who are downtrodden or suffering and have special concern for animals and environmental issues.

## CHARACTERISTICS OF ADULT LEARNERS

- Problem-centered; seek educational solutions.
- Results-oriented; have specific results in mind for education.
- Self-directed; typically, not dependent on others for direction.
- Often sceptical about new information; prefer to try it out before accepting it.
- Seek education that relates or applies directly to their perceived needs, that is timely and appropriate for their current lives.
- Accept responsibility for their own learning if learning is perceived as timely and appropriate.

## INDIVIDUAL DIFFERENCES

**Individual differences can be categorized on the following characteristics:**

- 1. Physical Appearance:**
- 2. Intelligence:**
- 3. Attitudes:**

4. **Achievement:** It has been found through achievement tests that individuals differ in their achievement abilities. These differences are very much visible in reading, writing and in learning mathematics.

These differences in achievement are even visible among the children who are at the same level of intelligence. These differences are on account of the differences in the various factors of intelligence and the differences in the various experiences, interests and educational background.

## 5. Motor ability

## 6. Sex:

*McNemar and Terman* discovered the following differences between men and women, on the basis of some studies:

- i. Women have greater skill in memory while men have greater motor ability.
- ii. Handwriting of women is superior while men excel in mathematics and logic.
- iii. Women show greater skill in making sensory distinctions of taste, touch and smell etc., while men show greater reaction and conscious of size- weight illusion.
- iv. Women are superior to men in languages, while men are superior in physics and chemistry.
- v. Women are better than men in mirror drawing. Faults of speech etc. in men were found to be three times of such faults in women.
- vi. Women are more susceptible to suggestion while there are three times as many colour-blind men as there are women.
- vii. Racial differences
- viii. Economic status
- ix. Interests
- x. Emotion
- xi. Personality

## Factors Affecting Teaching

### Factors Affecting Teaching related to the Learner

Both physiological and psychological factors of the learner affect learning outcomes. These can discuss as follow:

**Maturation:** - Maturation is the process of development of bodily systems and co- ordination in the functioning of bodily organs and systems. It is the physical readiness of the individual for learning. Maturation governs not only certain specific motor behaviour such as walking and talking etc., it also plays an essential role in acquiring other skills such as reading and writing. This readiness or potentially within the individual determines “what to learn” and ‘how to learn’.

**Age:** - Mental abilities and potentialities develop with age, so learning efficiency increases with age up to a certain level, and after that, it tends to decrease. As children are in growing and developing age, their capacity to learn and acquire new things is greater as compared to that of the older individuals. Grown-up children have greater potential to learn than very young children.

**Motivation:** - Motivation is the core of learning. It is of pivotal importance in affecting an individual's persistence to learn. Motivation is important in at least three ways; (i) It is a condition for eliciting behaviour. In other words, it brings out appropriate behaviour to be learned, (ii) Motivation is necessary for reinforcement, which, in turn, is an essential condition for learning, i.e. motivation permits reinforcement to occur, and (iii) It increases the variability of behaviour and thus raising the probability of occurrence of correct responses. For example, curiosity and exploratory drive bring the individual into wider contact with the environment which increases the possibility of performing correct behaviour/response. Thus, motivation provides a powerful incentive for the learner to perform better.

**Previous learning:** -Rate of learning is partially determined by the learner's previous learning experiences with similar or somewhat similar material. In the same or somewhat similar learned previous situation, the individual might have "learned how to learn," it at least prepares the ground to learn and provides ease in learning in the new set-up. So, the factor or relevant previous learning is of great importance.

**Intelligence:** - Intelligence, an innate mental ability is basic to the cognitive development of an individual. There is individual difference in the intellectual ability of learners. Intelligence, in terms of I.Q. score obtained on intelligence tests, is positively related to learning. Generally, children with higher I.Q. learn new material more rapidly

as compared to the average I.Q. children. However, learning is not always linearly related to I.Q. One point of caution is that intelligence cannot be defined solely in terms of learning ability or the learned material by the learner.

**Mental health:** - Good mental health in terms of the absence of anxiety, conflict, worry, and frustration, etc. provides the learner a good ground to learn better. All learning, especially for the beginners, entails a certain amount of anxiety, but anxiety above certain limits hampers learning and the outcomes in terms of the learned material decreases. Thus, the teacher should take care that children must not be put in such an emotional state as may prove a hindrance in learning.

**Physical handicaps and dysfunctioning:** -Malformation and malfunctioning of physical organs or some system cause great hindrance in children's proper learning. Defects in vision, hearing, and other diseases such as epilepsy, paralysis, cardiac problems, etc. affect learning. Needless to

say that poor vision, hearing defects, and physical handicaps have far-reaching psychological consequences in learning.

**Diet and nutrition:** - Good diet and other nutrients are an essential part of good physical health. These are essential for developing children and for better learning. For example, 90% of the glucose taken by a person is consumed by brain cells, so naturally, poor diet lacking adequate nutrients has an adverse effect on learning.

**Attention and interest:** -Both are interrelated to each other and are also a part of the motivation. Interest originates attention, and attention creates interest in the material/subject to be learned. If a child has an interest in some subject, he will pay more attention to that; and if he pays more attention, he may develop interest in the learning of that subject.

**Goal setting and level of aspiration:** - Goal setting and level of aspiration both related to the psychodynamics of behaviour. Goal set, high or low, by the individual, goes with the expectation of the individual to achieve. *High expectation for achievement excites and individual to set a high goal, and if he succeeds in achieving that, he will further have an expectation to set a higher goal. Low achievement, on the contrary, will not only disappoint the doer, but also lowers his goal setting behaviour.* Teachers should take care that learners make a realistic view of their abilities, set the goal accordingly, and go on increasing it on its achievement.

## Factors Affecting Teaching related to the Subject-Matters

Educationists and psychologists set the syllabi according to the physical and mental development of children; even then, the important material related factors influencing learning can be discussed as follows:

**The difficulty of the task:** - the material to be learned should be of appropriate difficulty level. Whereas a very easy task fails to challenge children, a very difficult task disappoints them and results in a slow rate of acquisition. The same task varies in difficulty for children of different developmental levels or capacity and previous experiences.

**Length of the task:** - A lengthy material poses a big problem for young learners. The longer a material the more difficult it would be to learn. The difficult task should also be presented in small parts.

**Meaningfulness of the task:** - Learning outcomes are associated with the meaningfulness of the learning material. Rapid learning occurs when children have to learn something meaningful.

So, the kind of material to be learned makes a considerable difference in the rate of learning. Some tasks are hard, others are easy. The tasks that have some meaning

make learning easier. *In verbal learning what makes certain learning material more meaningful than others, depends upon:*

- i. **Pronounce ability:** -Syllables or words that are easily pronounced are comparatively more readily learned than those which are difficult to pronounce.
- ii. **Discriminability:** - It means how far the instructional material “stands out” different from the other parts of the syllabus. Sometimes an altogether different material catches good attention of the learners and is learned quickly and easily than some other.
- iii. **Associativeness:** -The greater the number of associations in the subject-matter, the greater is its meaningfulness and easier it will be to learn.
- iv. **Perceptual Organization:** - These are related to the organization of the material. If the instructional material is organized well, its meaningfulness is increased, and the learners will have an easy grasp of it. One important type of such organization is known as “clustering” which is very helpful in learning. The gestalt Psychologists have recommended certain principles perceptual organization.
- v. **Conceptual hierarchies:** - Concepts may be ground into categories at some higher levels; making conceptual hierarchies of three or four levels, starting with concrete instances and then ascending to general concepts. Teacher can start taking concrete examples with young children and then go up to very general categories when he deals with grown up children. Once the material to be learned is organized in certain ways, the meaningfulness thus generated would be a powerful aid to learning.

- **The similarity of the task:** - Tasks which have some elements similar to the previously learned material make learning quick and comfortable. As in life, it is equally applicable in teaching-learning situations.
- **Organization:** - The subject-matter should be logically organized so that we have better outcomes. The organization of learning material should be from simple to difficult, from concrete to abstract and from direct to indirect keeping in view the physical and mental development of learners, otherwise much of teacher’s efforts and learner’s energy will be wasted.
- **Relationship with life:** - The task to be learned must be presented in an interrelated manner. No subject-matter should be taught in an isolated way. Most of the material from different subjects can be taught keeping in view their interrelationship. If some part of the subject- matter is related to life while teaching, its effectiveness increases, and forgetting, in that case, is minimized.

## Factors Related to Methods of Teaching and Environment

Knowledge of methods of teaching is very essential for effective learning. For better outcomes, teachers should use the appropriate methods of teaching considering chronological age and mental development of children. However, a summary of the generally used methods is presented as below:

- **Distribution of practice:** - It is also called a method of masses V/s spaced practice. Learning depends upon the rate at which the individual practices with the task. Short periods of practice inter read with a period of rest permit more efficient learning than does continuous or masses practice.
- **Whole V/s part learning:** - One important question is whether the material should be learned as a whole or in parts. One may go over the whole learning material several times or take one part at a time and learn it in the piecemeal method. *Experiments have proved that generally whole method gives better results as it provides a total grasp of the material, shows meaningful relationships between the different parts of the material. The material thus learned can be retained for a longer time than learning by part method. But relative effectiveness of each method depends upon: (i) The age of the learner; (ii) Difficulty level of the task; (iii) Length of the learning material; (iv) Mental ability of the learner.*
- **Recitation:** - One way to secure the active participation of the learners in teaching-learning is to use the recitation method. After learning certain material once, the learner recites and tries to recall it loudly. *Later on, he checks up and corrects his errors. Recitation method is superior to other methods in many situations, because:*
  - I. *It arouses active participation of the learner:*
  - II. *It gives instant feedback about his right responses: thereby permitting immediate correction of the errors;*
  - III. *While reciting the material the learner practices for the recall of the material, in a way, he is going through the final shape of the material, which he is likely to use late when tested.*
- **Knowledge of result:** - the learner goes on improving his performance if he is given information about the correctness of his responses or his progress in learning at each stage of mastery. The learner can sustain his efforts, if, during the course of learning, he may periodically know how well he has done or how far he is away from the target. Knowledge of result aids learning by being an incentive. Some information about his accomplishment helps in maintaining his interest and motivation in learning.
- **Learning by doing:** -Participation of the learner is of central significance. So, the students should be encouraged to learn things by doing. It will bring more of their involvement in the task. They would take more interest in learning that task and pay more attention to it. Therefore, the teacher should devise means and ways to ensure active participation of the students.
- **Suitability of Method:** - Methods of teaching adopted by the teacher and environmental

factors affecting learning are many and varied. These can be elaborated to any extent. Learning is affected by the suitability of methods of teaching like; Discussion method, Demonstration method, Lecture method, Project method, Heuristic method, Programmed learning method, Plat-way method, Story-telling method, Field-work, excursion and trips etc.

- **Teacher and Environments related Factors:** - These factors also play an important role in the effectiveness of teaching-learning outcomes. Physical environment, social environment, classroom culture, curricula, time table; and fatigue and rest very important for providing conducive environment to learn better.

## Factors Affecting related to Teacher

If the learner stands on one end of the ongoing teaching-learning process as one of the pole, then the teacher act as the other pole for the desired one of the teaching-learning activities in the classroom. Hence, teacher-related factors play a quite significant role in the process of teaching.

**The following are the teacher related factors in the teaching-learning process:**

### Subject Knowledge

There is a saying that a teacher is only as good as what they know. If a teacher lacks knowledge in a subject, that dearth of understanding is passed along to the students. A teacher who knows his subjects well can only play a decisive role in leading the journey of the teaching learning process.

### Knowledge of learners

This is a broad category that incorporates knowledge of the cognitive, social and emotional development of learners. It includes an understanding of how students learn at a given developmental level; how learning in a specific subject area typically progresses like learning progressions or trajectories; awareness that learners have individual needs and abilities; and an understanding that instruction should be tailored to meet each learner's needs.

### Teaching Skills

A teacher may know his subject well but for sharing, communicating and interacting with various experience related to the learning of the subject, he needs specific teaching skills. The proficiency and deficiency possessed by a teacher in this regard are quite responsible for turning the teacher learning process a big success or failure.

### Friendliness and Approachability

Because it's the teacher's job to help students learn, they must be easy to approach. Students will

have questions that can't be answered if the teacher isn't friendly and easy to talk to. The unapproachable, mean, arrogant, rude, teacher can't last long. If the students think of their teacher as their enemy, they certainly won't learn much. The best teachers are the most open, welcoming, and easy to approach. A good teacher possesses good listening skills and take time out of their busy schedule to solve all kinds of problems of their students.

## Personality and behaviour

A teacher as a leader has to lead his students in the teaching learning process through the magnetic influence and incredible impression left on the minds of the students on the basis of his personality traits and behaviour. He is a role model for his students. His actions, behaviour pattern and personality traits carry a great meaning to his students for being imitated and brought into practice.

## Level of Adjustment and Mental health of the teacher

How adjusted a teacher feel in his personal and professional life and the state and level of mental health maintained by the teacher carries much weight in influencing his teacher behaviour and teacher effectiveness needed for the effective control and management of the teaching, learning process. While a teacher possessing poor mental health and lack of adjustment in his personal and professional life may prove totally failure in realization of teaching learning objective, a teacher possessing good mental health and adjustment may prove an ideal image to his students and boon to the effectiveness of the teaching learning process.

## Discipline

In a classroom, a teacher uses discipline to ensure routine is maintained, school rules are enforced, and the students are in a safe learning environment. A great teacher has effective discipline skills and can promote positive behaviours and change in the classroom. Without discipline, learning cannot be accomplished.

## Factors affecting Teaching related to Institution

1. **Teacher -Student ratio**
2. **Quality of Teachers and Their Commitments**
3. **Infrastructure**
4. **Adopted teaching Methods**
5. **Management**
6. **Institutional Achievements**
7. **Stability**
8. **Environment**

## 9. Physical and Material Resources

### PSYCHOLOGY THEORIES

Much of what we know about human thought and behavior has emerged thanks to various psychology theories. For example, behavioral theories demonstrated how conditioning can be used to learn new information and behaviors. Psychology students typically spend a great deal of time studying these different theories. Some theories have fallen out of favor, while others remain widely accepted, but all have contributed tremendously to our understanding of human thought and behavior. By learning more about these theories, you can gain a deeper and richer understanding of psychology's past, present and future.

1. Behavioral Theories
2. Cognitive Theories
3. Developmental Theories
4. Humanist Theories
5. Personality Theories
6. Social Psychology Theories
7. Learning Theories

#### 1. Behavioral Theories

Behavioral psychology, also known as behaviorism, is a theory of learning based upon 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. Today, behavioral techniques are still widely used in therapeutic settings to help clients learn new skills and behaviors. Conditioning occurs through interaction with the environment. Behaviorists believe that our responses to environmental stimuli shapes our behaviors.

#### 2. Cognitive Theories

Cognitive theories of psychology are focused on internal states, such as motivation, problem solving, decision-making, thinking, and attention. Cognitive psychology is the branch of psychology that studies mental processes including how people think, perceive, remember and learn. As part of the larger field of cognitive science, this branch of psychology is related to other disciplines including neuroscience, philosophy and linguistics. The core focus of cognitive psychology is on how people acquire, process and store information. There are numerous

practical applications for cognitive research, such as improving memory, increasing decision-making accuracy and structuring educational curricula to enhance learning.

### 3. 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 behaviour, understanding these theories can provide useful insight into individuals and society.

### 4. Humanist Theories

Humanistic psychology theories began to grow in popularity during the 1950s. 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 include Carl Rogers and Abraham Maslow.

### 5. Personality Theories

Almost every day we describe and assess the personalities of the people around us. Whether we realize it or not, these daily musings on how and why people behave as they do are similar to what personality psychologists do. 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. Almost everyday we describe and assess the personalities of the people around us. Whether we realize it or not, these daily musings on how and why people behave as they do are similar to what personality psychologists do.

### 6. 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, social influence, love and much more. Social psychology looks at a wide range of social topics, including group behavior, social perception, leadership, nonverbal behavior, conformity, aggression and prejudice. It is important to note that social psychology is not just about looking at social influences. Social perception and social interaction are also vital to understanding social behavior.

### 7. Learning Theories

Learning theories focus on how people learning and acquire new knowledge. This is an interdisciplinary topic of interest that often draws upon information from psychology, education, instructional design, and other areas.

## METHODS OF TEACHING

Teaching is both, art and science. It requires mastermind creativity that the students of different nature and community should be handled carefully. Therefore, it is an art. On the other hand, it calls for the exercise of talent and creativity making it and involving repertoire of techniques, procedures, and skills that can be studied systematically, described, and improved, making it science. The teaching profession has successfully faced many challenges and transformations and adopted recent sophistication and technological innovations suitably. All these developments have helped the teaching community to regain a high status in academic campuses worldwide. The principles of learning and teaching are the tools available to a teacher to teach in a classroom or through TV. Successful teaching needs systematic planning and careful execution. Teaching is done in sequential steps. These steps are called the phases.

The teaching act follows in three stages:

1. **Pre-active phase.** It is the planning phase.
2. **Inter-Active Phase.** It concerns the implementation and carrying out what has been planned. Therefore, it is a stage of actual teaching.
3. **Post-Active Phase.** This phase concerns the evaluation activities, which serve as feedback for improvement.

There are five steps involved in the method of teaching.

1. Preparation
2. Presentation
3. Comparison
4. Generalization
5. Application

## Methods of Teaching According to different Schools of Philosophy

### 1. Methods by idealism

Buttler is right when he says, "Idealists consider themselves creators and determiners of methods, not devotees of someone method." They speak of the general nature of teaching methods only. They do not specify any method to be adopted in the centres of learning. Therefore, the method is the weakest aspect of the philosophy of idealism. Different idealists have adopted different methods. Socrates laid adopted the question method. Plato, his disciple, changed the question method into the conversational method and made it logical. His disciple, Aristotle followed inductive and deductive methods. Hegel adopted a logical method. Pestalozzi adopted the self-activity method.

Herbart on methods says, "I have no conception of education without instruction and do not acknowledge any instruction which does not educate." He also takes the help of the discussion method and at times suggests debate as a technique of teaching.

For classroom practice, idealists would encourage the use of the discussion and the lecture methods. The discussion method of learning which is popularly known as the Socratic method involves questioning and discussion. It was the method of learning in the Upanishadic period of Indian education. It is also known as the 'Informal dialectic' method. Idealists value the use of well-prepared and presented lectures. The lecture should not be a phonographic recitation on facts but a scholarly exposition. It should also not be delivered in an autocratic way. It should be participatory.

## 2. Methods by Naturalism

Rousseau considers education as a process of living. Being a process, it lasts throughout life or at least from birth to adult life. It finds its meaning for any particular stage, not on a future state. It is not artificial, harsh, unsympathetic, repressive of all-natural inclinations, by which "the child as a "little man" is made into a "big man" through the hands of the teacher. Development of the child through the natural process is an enjoyable, rational, harmoniously balanced, ^ useful and hence natural life. The aim of education is achieved not in adult life, but in each succeeding day, whenever life has its natural activities, its appropriate duties, and its corresponding satisfaction. Thus stress is given on direct experience of things. Rousseau, therefore says, "Give your scholar no verbal lessons: he should be taught by experience alone.

## 3. Pragmatic Methods

The focus of pragmatic methods of teaching is on the 'child-in-society' and his activities therein rather than the book, the teacher, the subject or exclusively the child-of-nature. Learning always occurs as a result of an activity. The teacher has to capitalize upon the activities of children to direct the teaching-learning process. Activity is the basis of all teaching. The child should be enabled to find out information by himself instead of pouring information on him. Children should be encouraged to discover and investigate the facts of life. Education must develop a laboratory habit of mind. The method of teaching should be experimental.

## 4. Existentialist Methods

The method of teaching advocated by existentialism is of

- asking questions,

- refining answers,
- asking more questions and
- pushing the issue until some acceptable conclusion was reached.

Existentialists favored the Socratic approach to teaching, as it was inductive, proceeding from the immediate and particular to the abstract and universal.

In this method, knowledge and wisdom are gained through personal relationships between the teacher and the pupil. They give emphasis on individual attention. Since the emphasis is given on individual attention, they prefer home education to school education.

In an existentialist system, the teacher cannot impose upon children his own ideas, ideals, ideologies, and values. Religious education may be imparted, provided there is no scope for indoctrinations. They advocate a method of teaching which can develop creativity among the pupils.

## Methods of Teaching as recommended by Secondary Education Commission (1952-53)

- I. The commission suggested that methods of teaching should provide ample opportunities for students to develop clear thinking and clear expression.
- II. Individual-centred methods and opportunities for practical application of knowledge should be adopted.
- III. Activity method and project method should be used in school practice.
- IV. Establishing Experimental and Demonstration schools and training in activities such as scout movement, N.C.C., first aid should be encouraged.

## Some Specific Methods of Teaching

### 1. Inferential Problem-Solving Technique

Inductive and deductive are two important procedures of systematic approaches to problem-solving.

### Steps in Inductive Method

- I. Recognition of the problem
- II. Searching for data
- III. Organisation of data
- IV. Framing tentative solutions
- V. Elimination

## VI. Verification

### Steps in Deductive Method

- I. Recognition of problem
- II. Searching for data
- III. Reviewing
- IV. Formulation of inferences
- V. Verification

## 2. Team-Teaching

Team-teaching is also called co-operative teaching. This is a recent idea in the field of education. M.B. Naik said, "In a team-teaching method, two or more teachers make a plan of the subjects

cooperatively, carry it out, and always evaluate its effects on the students periodically." In team teaching, subject teachers give lectures to a big class. On every working, all the members of the team have a common assembly. Here they discuss the methods used by the fellow-teachers.

3. **Micro-Teaching:** Micro-teaching is an innovative teaching technique. It is a new development in the field of teaching. The term micro-teaching was first coined by Dwight Allen of Stanford University in 1963.

### Features of micro-teaching

- i. It is a teacher training technique.
- ii. It focuses on developing teaching skills.
- iii. It reduces the class size in five to ten students.
- iv. The size of the topic is also reduced.
- v. Micro-teaching is a highly individualized training skill.
- vi. It provides feedback for trainee's performance.
- vii. It is an effective device to prepare competent teachers.
- viii. In this technique, learners are provided with immediate knowledge of the correctness of the response.

## Steps in Micro-teaching

- i. Defining the skill
- ii. Demonstrating the skill
- iii. Planning the lesson

- iv. Teaching the lesson
- v. Discussion
- vi. Re-planning
- vii. Re-teaching
- viii. Re-discussion
- ix. Repeating the cycle until the desired level of skill is achieved.

#### 4. Question-Answer technique in teaching

No teacher of elementary or secondary subjects can succeed in his instruction, which has not a fair mastery of the art of questioning.

#### Purposes of questioning:

- i. To test the knowledge
- ii. To locate the difficulty
- iii. To arouse motivation
- iv. To secure active participation of students.
- v. To apply knowledge
- vi. To recapitulate the lesson learnt.
- vii. To promote thinking and originality
- viii. To increase self confidence
- ix. To maintain discipline
- x. To promote intellectual and social development.

Underlying the need for questioning Parkar Said. "Questioning is the key to all educative activities."

#### Teaching Methods for Different Focused Groups

| Teacher-Focused Strategy    | Mixed Strategy             | Student-Focused strategy                    |
|-----------------------------|----------------------------|---------------------------------------------|
| <b>Large group methods</b>  | <b>Small group methods</b> | <b>Individualized methods</b>               |
| 1. Lectures                 | 1. Group discussion        | 1. Tutorials                                |
| 2. Team teaching            | 2. Seminar                 | 2. Assignments                              |
| 3. TV or video presentation | 3. Panel discussion        | 3. Project work                             |
|                             | 4. Brainstorming           | 4. Case study                               |
|                             | 5. Project method or work  | 5. Programmed instruction                   |
|                             | 6. Tutorials               | 6. Computer-assisted learning               |
|                             | 7. Case study              | 7. Interactive video                        |
|                             | 8. Role play               | 8. Open learning                            |
|                             | 9. Simulation              | 9. Personalized system of instruction (PSI) |
|                             | 10. Demonstration          | 10. Heuristic method                        |

## Teacher Centred and Learner Centred methods

*Here, you will learn about the teaching styles especially, teacher-centred and learner-centred (student) centred) approach of teaching. You will also get the concept, pros and cons, comparison between teacher vs student-centred approach and some other methods of teaching.*

### Teaching Method

The term “teaching method” refers to the general principles, pedagogy, and management strategies used for classroom instruction.

### Teaching Style

**Daniel K. Schneider** thinks that teaching style refers to the teaching strategies and methods employed, including the use of certain kinds of rhetoric.

The term itself has no agreed definition but the more widely accepted definitions refer to it as: "a set of teaching tactics" (Galton et al, 1980)

"instructional format" (Siedentop, 1991).

"the general pattern created by using a particular set of strategies"

**Anthony Grasha (1996)** identified five potential approaches for classroom teachers:

- Expert**
- Formal Authority**
- Personal Model**
- Facilitator**
- Delegator**

| Style | Description | Advantage/<br>Disadvantage |
|-------|-------------|----------------------------|
|-------|-------------|----------------------------|

# TEACHING APTITUDE

|                                |                                                                                                                                                                                                                                                                                   |                                                                                                                                                                                                                                                                                     |
|--------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p><b>Expert</b></p>           | <p>Possesses knowledge and expertise that students need. Strives to maintain status as an expert by displaying detailed knowledge and challenging students to enhance their competence. Concerned with transmitting information and ensuring that students are well prepared.</p> | <p><i>Advantage:</i> The information, knowledge, and skills such individuals possess.<br/> <i>Disadvantage:</i> If overused the display of knowledge can be intimidating to inexperienced students. May not always show the underlying thought processes that produced answers.</p> |
| <p><b>Formal Authority</b></p> | <p>Possesses status among student because of knowledge and role as a faculty. Concerned with providing positive/negative feedback, establishing learning goals, expectations, and rules of conduct. Concerned with “correct, acceptable, and standard ways to do things.”</p>     | <p><i>Advantage:</i> The focus on clear expectations and acceptable ways of doing things.<br/> <i>Disadvantage:</i> A strong investment in this style can lead to rigid standardized ways of managing students and their concerns.</p>                                              |

# TEACHING APTITUDE

|                       |                                                                                                                                                                                                                                                                                                                                    |                                                                                                                                                                                                                                                                                                                                                                     |
|-----------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Personal Model</b> | Believes in “teaching by example,” establishes a prototype for how to think and behave. Oversees and directs by showing how to do things and encouraging students to observe and then emulate the instructor’s approach.                                                                                                           | <p><b>Advantage:</b> The “hands on” nature of the approach. Emphasis on direct observation and following a role model.</p> <p><b>Disadvantage:</b> Some instructors believe their approach is “best” leading some students to feel inadequate if they cannot live up to such expectations and standards.</p>                                                        |
| <b>Facilitator</b>    | Emphasizes the personal nature of teacher-student interactions. Guides students by asking questions, exploring the option, suggesting alternatives, and encouraging informed decisions. Develop student capacity for independent responsibility. Works as a consultant on student projects and provides support and encouragement. | <p><b>Advantage:</b> The personal flexibility; the focus on students’ needs and goals; the willingness to explore alternative courages of actions to achieve goals.</p> <p><b>Disadvantage:</b> Style is time- consuming and ineffective when a more direct approach is needed. Can make students uncomfortable if not used in a positive and affirming manner.</p> |
| <b>Delegator</b>      | Concerned with developing students’ capacity to function autonomously. Students work independently on projects or as part of autonomous teams. The teacher is available at the request of students as a resource.                                                                                                                  | <p><b>Advantage:</b> Contribute to students perceiving themselves as independent learners.</p> <p><b>Disadvantage:</b> May misread students’ readiness for independent work. Some students may become anxious when given autonomy.</p>                                                                                                                              |

## *Comparison of Five Teaching Styles*

**Behar-Horenstein (2006)** and many other studies distinguish between:

- Teacher centred**
- Student-centred (Learner Centred)**

Daniel K.

Schneider doesn't feel that these 2 dimensions reflect more recent theory. E.g. modern socio-constructivism (typically associated with "student-centred") is very much teacher-led and can be highly scripted. In other words, it may be more interesting to talk about the amount of scaffolding, monitoring and tutoring provided.

**Moston and Ashworth (1986)** define according to Doherty (2003) a list of teaching methods.

1. **Style A (Command)** - teacher makes all decisions.
2. **Style B (Practice)** - Students carry out teacher-prescribed tasks.
3. **Style C (Reciprocal)** - Students work in pairs: one performs, the other provides feedback.
4. **Style D (Self-check)** - Students assess their own performance against criteria
5. **Style E (Inclusion)** - Teacher planned. Student monitors own work.
6. **Style F (Guided Discovery)** - Students solve teacher set movement problems with assistance.
7. **Style G (Divergent)** - Students solve problems without assistance from the teacher.
8. **Style H (Individual)** - Teacher determines content. Student plans the programme.
9. **Style I (Learner Initiated)** - Student plans own programme. A teacher is an advisor.
10. **Style J (Self Teaching)** - Student takes full responsibility for the learning process.

## Teacher-Centred Method

In teacher-centred methods, students put all of their focus on the teacher. You talk, and the students exclusively listen. During activities, students work alone, and collaboration is discouraged.

### Pros

- When education is teacher-centred, the classroom remains orderly. Students are quiet, and you retain full control of the classroom and its activities.
- Because students learn on their own, they learn independence and make their own decisions.
- Because you direct all classroom activities, you don't have to worry that students will miss an
- important topic.

### Cons

- When students work alone, they don't learn to collaborate with other students, and their communication skills may suffer.
- Teacher centred instruction can be boring for students. Their minds may wander, and they may miss important facts.
- Teacher centred instruction doesn't allow students to express themselves, ask questions, and direct their own learning.

## Learner-centred Method (Student Centred)

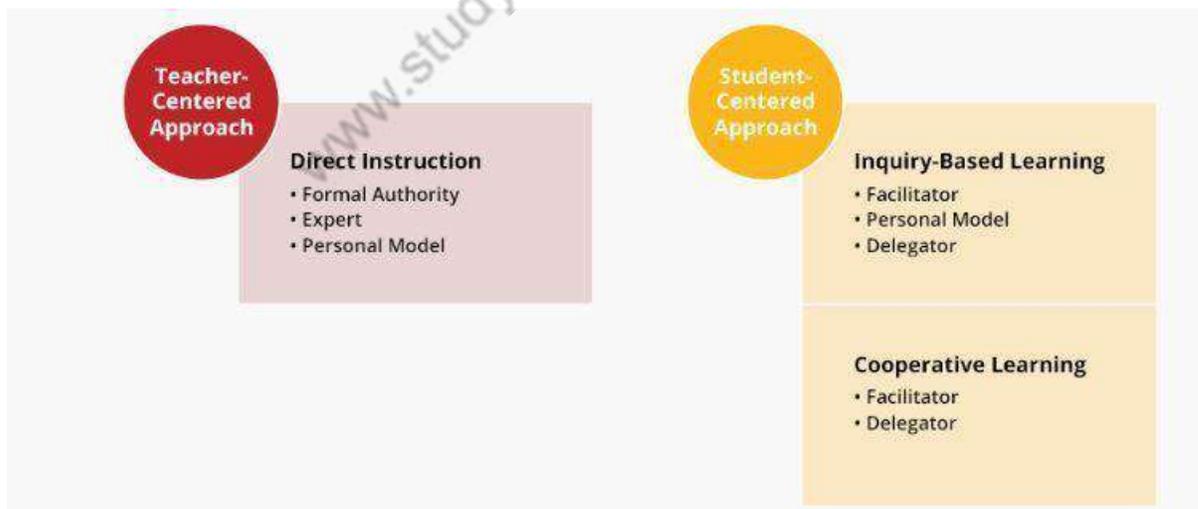
When a classroom operates with student-centred instruction, students and instructors *share* the focus. Instead of listening to the teacher exclusively, students and teachers interact equally. Group work is encouraged, and students learn to collaborate and communicate with one another.

### Pros

- Students learn important communicative and collaborative skills through group work.
- Students learn to direct their own learning, ask questions, and complete tasks independently.
- Students are more interested in learning activities when they can interact with one another and participate actively.

### Cons

- Because students are talking, classrooms may often be noisy or chaotic.
- Teachers may have to attempt to manage all students' activities at once, which can be difficult
- when students are working on different stages of the same project.
- Because the teacher doesn't always deliver instruction to all students at once, some students
- may miss important facts.
- Some students prefer to work alone, so group work can become problematic.



(source: teach.com)

## Comparison of Teacher-Centred and Learner-Centred

(According to Learner-Centered Assessment on College Campuses by Huba and Freed 2000)

### Teacher-Centred Paradigm

Knowledge is transmitted from professor to students

Students passively receive information

Emphasis is on the acquisition of knowledge outside the context in which it will be used

Professor's role is to be primary information giver and primary evaluator

Teaching and assessing are separate

Assessment is used to monitor learning

Emphasis is on right answers

Desired learning is assessed indirectly through the use of objectively scored tests

Focus is on a single discipline

Culture is competitive and individualistic

### Learner-Centred Paradigm

Students construct knowledge through gathering and synthesizing information and integrating it with the general skills of inquiry, communication, critical thinking, problem-solving and so on

Students are actively involved

Emphasis is on using and communicating knowledge effectively to address enduring and emerging issues and problems in real-life contexts

Professor's role is to coach and facilitate Professor and students evaluate learning together

**Teaching and assessing are intertwined**

**Assessment is used to promote and diagnose learning**

Emphasis is on generating better questions and learning from errors

**Desired learning is assessed directly through papers, projects, performances, portfolios, and the like**

Approach is compatible with interdisciplinary investigation

Culture is cooperative, collaborative, and supportive

### **TEACHER CENTRED and LEARNER CENTRED instruction**

(According to Assessing Academic Programs in Higher Education by Allen 2004)

# TEACHING APTITUDE

| Concept                               | Teacher-Centered                                                                                                    | Learner-Centered                                                                                                                                                                                                                                                                                                    |
|---------------------------------------|---------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Teaching goals</b>                 | Cover the discipline                                                                                                | Students learn: <ul style="list-style-type: none"> <li>- How to use the discipline</li> <li>- How to integrate disciplines to solve complex problems</li> <li>- An array of <b>core learning objectives</b>, such as communication and information literacy skills</li> </ul>                                       |
| <b>Organization of the curriculum</b> | Courses in catalogue                                                                                                | Cohesive program with systematically created opportunities to synthesize, practice, and develop increasingly complex ideas, skills, and values                                                                                                                                                                      |
| <b>Course structure</b>               | Faculty cover topics                                                                                                | <b>Students master learning objectives</b>                                                                                                                                                                                                                                                                          |
| <b>How students learn</b>             | Listening Reading<br>Independent learning, often in competition for grades                                          | <ul style="list-style-type: none"> <li>· Students construct knowledge by integrating new learning into what they already know</li> <li>· Learning is viewed as a cognitive and social act</li> </ul>                                                                                                                |
| <b>Pedagogy</b>                       | Based on delivery of information                                                                                    | Based on engagement of students                                                                                                                                                                                                                                                                                     |
| <b>Course delivery</b>                | <ul style="list-style-type: none"> <li>· Lecture</li> <li>· Assignments and exams for summative purposes</li> </ul> | <ul style="list-style-type: none"> <li>· Active learning</li> <li>· Assignments for formative purposes</li> <li>· Collaborative learning</li> <li>· Community service learning</li> <li>· Cooperative learning</li> <li>· Online, asynchronous, self-directed learning</li> <li>· Problem-based learning</li> </ul> |
| <b>Course grading</b>                 | <ul style="list-style-type: none"> <li>· Faculty as gatekeepers</li> <li>· Normal distribution expected</li> </ul>  | <b>Grades indicate mastery of learning objectives</b>                                                                                                                                                                                                                                                               |
| <b>Faculty role</b>                   | Sage on the stage                                                                                                   | · Designer of learning environments                                                                                                                                                                                                                                                                                 |
| <b>Effective teaching</b>             | Teach (present information) well and those who can will learn                                                       | <ul style="list-style-type: none"> <li>· Engage students in their learning</li> <li>· Help all students master learning objectives</li> <li>· <b>Use classroom assessment to improve courses</b></li> <li>· <b>Use program assessment to</b></li> </ul>                                                             |

# TEACHING APTITUDE

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|  |  | improve<br>programs |
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## Offline vs Online Teaching Methods

### Traditional Teaching Method (Offline Method)

In the pre-technology education context, the teacher is the sender or the source, the educational material is the information or message, and the student is the receiver of the information. In terms of the delivery medium, the educator can deliver the message via the "chalk-and-talk" method and overhead projector (OHP) transparencies. This directed instruction model has its foundations embedded in the behavioural learning perspective and it is a popular technique, which has been used for decades as an educational strategy in all institutions of learning.

Some limitations which may prevail in traditional teaching method:

- Teaching in classroom using chalk and talk is "one-way flow" of information.
- Teachers often continuously talk for an hour without knowing student's response and feedback.
- The material presented is only based on lecturer notes and textbooks.
- Teaching and learning are concentrated on "plug and play" method rather than practical aspects.
- The handwriting of the lecturer decides the fate of the subject.
- There is insufficient interaction with students in classroom.
- More emphasis has been given on theory without any practical and real lifetime situations.
- Learning through memorization but not understanding.
- Marks oriented rather than result oriented.

### Online Methods

**E-Learning:** E-Learning is an abbreviation of the term electronic learning. It is the use of electronic media, educational technology and ICT in education. It includes numerous types of media that deliver text, audio images, animation and streaming video. It also includes technology applications and process such as audio or video tape, satellite, TV, CD-ROM and computer-based learning information and communication system. E-Learning can occur in or out of the classroom. It suited to distance learning and flexible leaning but can also be used in conjunction with face-to-face teaching, in which case, the term 'Blended Learning' is commonly used.

### Online Learning:

There is no single definition for online learning. It includes learning with the assistance of the Internet and a personal computer. The term e-learning or electronic learning often is used interchangeable with online learning.

There are many terms for online education. Some of them are virtual education, interest-based education, web-based education and education via computer mediated communication.

## Characteristics of Online Teaching-Learning Methods

1. The separation of teachers and learner, which distinguish it from face to face education.
2. The influence of an educational organization, which distinguishes it from self-study and private tutoring.
3. The use of a computer network to present of distributes educational content.
4. The provision of two-way communication via a computer network, so that students may benefit from communication with each other, teacher and staff.

## Advantages of Online Method

1. **Extendibility, Accessibility and Suitability:** Users can proceed through a training programme at their own pace and at their own places. They can also access the training at any time receiving only as much as they need.
2. **Easy to content Update:** The changes you make to any of your content are immediately available to your learning audience across the world.
3. **Travel Cost and Time Savings:** Learning is delivered directly to the learner instead of the other way around.
4. **Internet Connections are Widely Available:** Most computer users have access to a browser and are connected to a company's internet and have access to the internet.
5. **Vast Untapped Market for Training:** If you are looking for commercial markets, the internet also offers a huge audience hungry for material via the net.
6. **Inexpensive Worldwide Distribution:** No separate or distinct distribution mechanism is needed.

7. Direct Access to Many Other Training Resources: The internet gives access to the largest library in the world. Capitalize on the offering that have already been created and use them to enhance the learning you are distributing.

## Disadvantages of Online Learning Methods

- Student assessment and feedback is limited.
- Cannot design and develop robust multi-media courses.
- The net is not right for all types of training.
- It is highly costly method of learning.
- Limited bandwidth means slower performance.
- Bandwidth/browser limitation may restrict instructional methodologies.
- Little formatting of content in current browsers.
- There is lack of personal community and connections.

In all according to Steve Lohr(2009), “On average, students in online learning conditions performed better than those receiving face-to-face instruction.”

Today’s age is the age of technology and hence the need and importance of online learning will increase day-by-day.

## SWAYAM

**SWAYAM (Study Webs of Active–Learning for Young Aspiring Minds)** is a programme initiated by Government of India and designed to achieve the three cardinal principles of Education Policy viz., access, equity and quality. The objective of this effort is to take the best teaching learning resources to all, including the most disadvantaged. SWAYAM seeks to bridge the digital divide for students who have hitherto remained untouched by the digital revolution and have not been able to join the mainstream of the knowledge economy. This is done through an indigenous developed IT platform that facilitates hosting of all the courses taught in classrooms to be accessed by anyone, anywhere at any time. All the courses are interactive, prepared by the best teachers in the country and are available, free of cost to the residents in India.

SWAYAM platform is developed by Ministry of Human Resource Development (MHRD) and NPTEL, IIT Madras with the help of Google Inc. and Persistent Systems Ltd. It would be ultimately capable of hosting 2000 courses and 80000 hours of learning: covering school, under- graduate, post-graduate, engineering, law and other professional courses.

## What is offered in SWAYAM?

- Courses that are taught in classrooms from 9th class till post-graduation.
- The courses hosted on SWAYAM is in 4 quadrants

1. video lecture
  2. specially prepared reading material that can be downloaded/printed
  3. self-assessment tests through tests and quizzes and
  4. an online discussion forum for clearing the doubts.
- ❑ Categories of courses include - Engineering, Science, Humanities, Management, Language, Mathematics, Arts and Recreation, Commerce, General, Library, Education.
  - ❑ Courses delivered through SWAYAM are available free of cost to the learners.
  - ❑ Students wanting certifications need to register and shall be offered a certificate on successful completion of the course, with a little fee.
  - ❑ At the end of each course, there will be an assessment of the student through proctored examination and the marks/grades secured in this exam could be transferred to the academic record of the students.

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## How does SWAYAM Platform work?

This is done through a platform that facilitates hosting of all the courses, taught in classrooms from Class 9 till post-graduation to be accessed by anyone, anywhere at any time. All the courses are interactive, prepared by the best teachers in the country and are available, free of cost to any learner. More than 1,000 specially chosen faculty and teachers from across the country have participated in preparing these courses.

The courses hosted on SWAYAM are in 4 quadrants –

- (1) video lecture,
- (2) specially prepared reading material that can be downloaded/printed
- (3) self-assessment tests through tests and quizzes and
- (4) an online discussion forum for clearing the doubts.

Steps have been taken to enrich the learning experience by using audio-video and multi-media and state of the art pedagogy / technology.

## Benefits of Swayam

- ❑ **Best in class instructors:** empowering you with knowledge and skills.
- ❑ **Weekly assignment:** ensuring your progress in timely manner.
- ❑ **Proctored exams:** Channelised through our authorised partner.
- ❑ **Easy Credit Transfer:** complementary your academic progress.

- ❑ **Active local chapters:** enhancing effectiveness of MOOCs.
- ❑ **Systematic Approach:** enabling you towards desired learning goals.

## National Coordinators of SWAYAM

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In order to ensure that best quality content is produced and delivered, nine National Coordinators have been appointed. They are:

1. AICTE (All India Council for Technical Education) for self-paced and international courses
2. NPTEL (National Programme on Technology Enhanced Learning) for Engineering
3. UGC (University Grants Commission) for non-technical post-graduation education
4. CEC (Consortium for Educational Communication) for under-graduate education
5. NCERT (National Council of Educational Research and Training) for school education
6. NIOS (National Institute of Open Schooling) for school education
7. IGNOU (Indira Gandhi National Open University) for out-of-school students
8. IIMB (Indian Institute of Management, Bangalore) for management studies
9. NITTTR (National Institute of Technical Teachers Training and Research) for Teacher Training programme

## How to Get Certificate for SWAYAM Courses?

Courses delivered through SWAYAM are available free of cost to the learners, however learners wanting a SWAYAM certificate should register for the final proctored exams that come at a fee and attend in-person at designated centres on specified dates. Eligibility for the certificate will be announced on the course page and learners will get certificates only if this criterion is matched. Universities/colleges approving credit transfer for these courses can use the marks/certificate obtained in these courses for the same.

## Credit Transfer

UGC has already issued the UGC (Credit Framework for online learning courses through SWAYAM) Regulation 2016 advising the Universities to identify courses where credits can be transferred on to the academic record of the students for courses done on SWAYAM. AICTE has also put out gazette notification in 2016 and subsequently for adoption of these courses for credit transfer.

## How to access SWAYAM

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- ❑ You can access the SWAYAM portal on the web - <https://swayam.gov.in>
- ❑ You can access the SWAYAM mobile apps for - [Android](#) and [iOS](#)

SWAYAM Prabha is an initiative of the Ministry of Human Resources Development to provide 32 High Quality Educational Channels through DTH (Direct to Home) across the length and breadth of the country on 24X7 basis.

It has curriculum-based course content covering diverse disciplines. This is primarily aimed at making quality learning resources accessible to remote areas where internet availability is still a challenge.

The DTH channels are using the GSAT-15 satellite for programme telecasts.

## Scope of Swayam Prabha

The SWAYAM PRABHA has new content every day for at least (4) hours which would be repeated 5 more times in a day, allowing the students to choose the time of their convenience. The channels are uplinked from BISAG, Gandhinagar. The contents are provided by NPTEL, IITs, UGC, CEC, IGNOU, NCERT and NIOS. The INFLIBNET Centre maintains the web portal.

### The DTH Channels covers the following:

- 1) Higher Education: Curriculum-based course contents at post-graduate and under-graduate level covering diverse disciplines such as arts, science, commerce, performing arts, social sciences and humanities, engineering, technology, law, medicine, agriculture, etc. All courses would be certification-ready in their detailed offering through SWAYAM, the platform being developed for offering MOOCs courses.
- 2) School education (9-12 levels): modules for teacher's training as well as teaching and learning aids for children of India to help them understand the subjects better and also help them in preparing for competitive examinations for admissions to professional degree programmes.
- 3) Curriculum-based courses that can meet the needs of life-long learners of Indian citizens in India and abroad.

Assist students (class 11th & 12th) prepare for competitive exams.

## List of Channels

| Channel No. | Channel Name - Route/Parent<br>Managed by CEC, New Delhi.                                                                                   |
|-------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1           | Channel 01: VAGEESH: CEC/UGC: Humanities- 1, Language and Literature EMRC, EFLU, Hyderabad                                                  |
| 2           | Channel 02: SANSKRITI: CEC/UGC: Humanities- 2, Arts, History, Philosophy and related Subjects CEC, New Delhi                                |
| 3           | Channel 03: PRABODH: CEC/UGC: Social Science -1, Sociology, Political Science and related subjects EMRC Jodhpur                             |
| 4           | Channel 04: SAARASWAT: CEC/UGC: Social Science - 2, Education, Psychology, Home Science and related subjects CEC, New Delhi                 |
| 5           | Channel 05: PRABANDHAN: CEC/UGC: Social Science - 3, Management, Library Science, Information Science and related subjects MCRC Jamia Milia |
| 6           | Channel 06: VIDHIK: CEC/UGC: Social Science - 4, Law, Legal Studies, Human Rights and related subjects EMRC Patiala                         |
| 7           | Channel 07: KAUTILYA: CEC/UGC: Economics, Commerce and Finance EMRC Ahmadabad                                                               |
| 8           | Channel 08: ARYABHATT: CEC/UGC: Physical sciences, Mathematics, Physics, Chemistry and related Subjects EMRC, University of Calicut         |
| 9           | Channel 09: SPANDAN: CEC/UGC: Life Sciences, Botany, Zoology, Bio-Science and related subjects EMRC, Kashmir University, Srinagar           |
| 10          | Channel 10: DAKSH: CEC/UGC: Applied Sciences, Allied Physical and Chemical sciences and related subjects EMRC, Anna University, Chennai     |
|             | <b>Managed by NPTEL</b>                                                                                                                     |
| 11          | Channel 11: NPTEL: Chemical Engineering, Chemistry and related Subjects IIT Kharagpur                                                       |
| 12          | Channel 12: NPTEL: Civil Engineering and related subjects IIT Delhi                                                                         |

|    |                                                                                                                     |
|----|---------------------------------------------------------------------------------------------------------------------|
| 13 | Channel 13: NPTEL: Computer Science and Engineering IIT Kharagpur                                                   |
| 14 | Channel 14: NPTEL: Electrical engineering, Electronics and Communication Engineering and related subjects IIT Delhi |
| 15 | Channel 15: NPTEL: Engineering Sciences and general subjects for engineering IIT Madras                             |
| 16 | Channel 16: NPTEL: Humanities, Social Sciences and Management IIT Kanpur                                            |
| 17 | Channel 17: NPTEL: Mechanical Engineering and related subjects IIT Kanpur                                           |
| 18 | Channel 18: NPTEL: Mathematics, Physics, Metallurgy and related subjects IIT Tirupati / IIT Madras                  |

**Managed for High School students by IIT Delhi and is called IIT PAL**

19 Channel 19: IIT PAL: Biology IIT PAL 1 IIT Delhi

20 Channel 20: IIT PAL: Chemistry IIT PAL 2, IIT Delhi

21 Channel 21: IIT PAL: Mathematics IIT PAL 3. IIT Delhi

22 Channel 22: IIT PAL: Physics IIT PAL 4, IIT Delhi

**Managed by IGNOU, New Delhi**

23 Channel 23: IGNOU: Liberal Arts and Humanities IGNOU, New Delhi

24 Channel 24: IGNOU: Agriculture, Vocational and Allied Sciences IGNOU, New Delhi

**Managed by the NIOS, New Delhi**

25 Channel 25: NIOS: D.El.Ed (Regional Language) NIOS, New Delhi

**Managed by IGNOU, New Delhi**

26 Channel 26: IGNOU: State Open Universities' programs IGNOU, New Delhi

**Managed by the NIOS, New Delhi**

27 Channel 27: NIOS: Secondary School Education NIOS, New Delhi

28 Channel 28: NIOS: Higher Secondary School Education NIOS, New Delhi

**Managed by UGC-INFLIBNET, Gandhinagar**

29 Channel 29: UGC-INFLIBNET (PG Subject's & YOGA) UGC-INFLIBNET, Gandhinagar

**Managed by the NIOS, New Delhi**

30 Channel 30: NIOS: Gyanamrit NIOS, New Delhi

**Managed by NCERT**

31 Channel 31: NCERT: School and Teacher Education NCERT, New Delhi

**Managed by IGNOU and NIOS jointly**

32 Channel 32: IGNOU and NIOS: Teacher Education IGNOU and NIOS, New Delhi

## Massive Open Online Course (MOOC)

A massive open online course (MOOC) is an online course that has open access and interactive participation by means of the Web. MOOCs provide participants with course materials that are normally used in a conventional education setting - such as examples, lectures, videos, study materials and problem sets. Apart from this, MOOCs offer interactive user forums, which are extremely useful in building a community for students, TAs, and professors. Generally, MOOCs do not charge tuition fees or provide academic credit.

## Techopedia explains *Massive Open Online Courses (MOOCs)*

MOOCs are a recent progression in distance education. The concept of MOOCs originated in 2008 among the open educational resources (OER) movement. Most of the initial courses were influenced by connectivist theory, which emphasizes that knowledge and learning arise from a network of relationships or connections. 2012 was a big year for MOOCs, as the industry attracted significant media buzz and venture capital interest. Numerous providers have emerged that are affiliated with top universities; some of these include edX, Coursera and Udacity.

Some of the advantages of a MOOC are as follows:

- No tuition fees
- Open access, exposing top-level professors at schools that would otherwise be unavailable to much of the World's population
- Open courses for all interested, regardless of location, resulting in a more diverse student base
- Collecting data via computer programs helps closely monitor the success and failure of each student. Traditional classroom participation cannot offer this type of precise information.
- Some enthusiastic professors have found global sharing of knowledge more appealing. Many acknowledge that MOOCs help them re-evaluate their pedagogical methods while improving knowledge sharing.

One drawback is the low course completion rate. Some studies have shown that courses are completed by as few as 10 per cent of the huge volume of students that join the MOOC.

### The Basics of MOOCs

To better understand what a MOOC is, take a deeper look into the meaning behind the acronym:



**Massive:** Thousands of students can take the same course at the same time. For instance, over 150,000 people signed up for Dr. Sebastian Thrun's "Introduction to Artificial Intelligence" back in 2012.



**Open:** Anyone, regardless of academic achievement, can use these courses, and they are free or extremely low-cost which makes them useful for everyone (assuming they speak the correct language – many MOOCs are available in 4 or 5 languages).



**Online:** Students can collaborate and interact with other learners from around the world – all that's necessary is a solid internet connection.



**Courses:** Rather than simply listening to a pre-recorded lecture on iTunesU or watching one in a video, MOOCs are designed from the ground up to be effective for online learning. The technology that's being used is still evolving, and 8 the teaching methods continue to improve.

## What sets MOOCs apart from other distance learning options

Online colleges have been around for quite a while, and they are widely understood and utilized. However, MOOCs have only been around since 2012 (many consider the course taught by Dr. Thrun to be the first real MOOC), and many people either don't know what they are or assume they are similar to online college classes.

Before MOOCs came on the scene, there were two other basic types of distance learning: OpenCourseWare (OCW) and online college classes – both are at opposite ends of the spectrum. OCW is basically just a publication of an institution's course material online. The material can be used by anyone and even edited (as long as proper attribution is made). Many consider OCW to be the predecessor to MOOCs as they share the same goal of making quality education accessible to everyone.

Conversely, online colleges provide a structured university class online. The students must be enrolled in the university and are paying tuition and receiving grades as they would if they physically attended the class.

MOOCs are a kind of middle ground between the two extremes. Here are some of the main differences:



**Cost:** While online college classes are very expensive and OCW is free, MOOCs usually come with a small fee (if you want a verified certificate of completion).



**Structure:** OCW requires nothing of the learner, and online college classes have strict deadlines and homework requirements. On the other hand, MOOCs have a few requirements and some structure, but usually allow for learning to take place on each student's own schedule.



**Grading:** OCW provides a means to grade the course, but the institution that published it doesn't typically do the grading themselves. With online college courses, the grading is done by the professor or assistants. MOOCs compromise between the two by using a combination of automated computer grading and peer grading (or other human grading methods).



**Availability:** OCW is freely open to anyone and can be shared or altered, while online college courses are only available to students who have been accepted into the university. MOOCs are the property of the institution or platform that created them, and a student must agree to the platform's terms of use and pay any fee required for the course. However, MOOCs don't require any sort of academic achievement or admissions process like online colleges do.

## The basic features of most quality MOOCs

Most MOOCs offered by quality platforms share the common components:

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**A Video Component:** A Video Component: The teacher records a lecture that's typically broken into small chunks (two to ten minutes). Other media (YouTube clips, etc.) is often integrated into the lecture as well.



**Reading Material:** Free ebooks or other written materials are usually required or recommended.



**Integrated Activities:** One great feature that MOOCs usually utilize is breaking up lectures and reading with activities that vary depending on the course. These activities could take the form of questions, a small-scale project (such as developing one or two lines of programming code), or redirecting to an outside source of information or experience.



**Course-Specific Forums:** Since you can't interact with other students or your professor in person, it's important to have a way to ask questions and get other perspectives online. Our top three recommended platforms integrate a forum into each course that allows for questions to be quickly addressed by the community or moderators.



**Sectional or Weekly Organization:** Most MOOCs are organized into a series of sections or weeks (depending on whether the course is scheduled or a "learn-at-your-own-pace" course).



**Sectional Test or Project:** You can usually expect there to be some sort of project or test at the end of each section to reinforce what was learned in that section or week.



**Final Examination or Project:** There is typically some sort of final examination or project that measures whether the student has an acceptable grasp on the skills and concepts presented in the course. Most MOOCs are "pass/fail" meaning that there isn't a letter grade given out, and some give you the option to keep trying until you succeed.

## How to use MOOCs

Enrolling and taking a MOOC can be broken down into five steps.

### Step 1: Choose your platform

Like we mentioned earlier, not all platforms provide the same quality of MOOCs. For instance, there were 19 platforms that we considered, and only six survived the cuts. Of those six, only three stood above the rest after our evaluation. It's a good idea to compare MOOCs between the top three we recommend and find the courses that fit your needs.

### Step 2: Create an account

Signing up for an account is a free process – all you need is an email address. Keep in mind that some platforms may require a subscription to access certain content. For instance, if you want to take a specialization (a group of MOOCs) from Coursera, you will need to provide payment information, and you will be charged monthly at the end of a free trial.

### Step 3: Decide how you want to learn

There are three basic ways to approach taking a MOOC:

1. **Audited Course:** You can audit a course to learn for your own benefit. Auditing can typically be done for free, but don't expect to receive a certificate (definitely not an ID-verified certificate). In this scenario, finishing the course isn't always important as you may be taking the course simply out of curiosity or for the fun of it.
2. **Certified Course:** This approach involves completing a specific course to receive a certificate (verified or unverified). Since there's usually a monetary investment, completing this course is more important, and you won't gain any certification if you don't.
3. **Specialization:** MOOCs offer specializations (or learning pathways) that consist of a series of courses. If you successfully complete the specialization, you will receive a special certification (although some platforms require you to pay for the certificate).

### Step 4: Enrol in a MOOC

MOOCs can either be scheduled (meaning there are a start and end date) or “on-demand”

(meaning that you can learn on your own time and at your own pace). Scheduled courses may require assignments to be completed by a certain date or time, while on-demand courses can be stretched out over a long period of time.

## Step 5: Complete the course

Whether your intention is to fully complete the course or not, our top three recommendations usually allow you to do the work on a desktop, tablet, or smartphone.

### List of Popular MOOCs Platforms

| Provider                                             | Founded | Content License                                       |
|------------------------------------------------------|---------|-------------------------------------------------------|
| <a href="#">ALISON</a> (Commercial, Ireland)         | 2007    |                                                       |
| <a href="#">Canvas Network</a> (Commercial, USA)     | 2008    | All Rights Reserved, registration required.           |
| <a href="#">SWAYAM</a> (Non-Profit, India)           | 2017    | Free for registered users, different course licenses  |
| <a href="#">Coursera</a> (Commercial, USA)           | 2012    | Free for registered users, different course licenses  |
| <a href="#">Coursmos</a> (Commercial, USA)           | 2014    |                                                       |
| <a href="#">edX</a> (Non-profit, USA)                | 2012    | All rights reserved                                   |
| <a href="#">Eliademy</a> (Commercial, Finland)       | 2012    |                                                       |
| <a href="#">FutureLearn</a> (Commercial, UK)         | 2012    | All rights reserved.                                  |
| <a href="#">iversity</a> (Commercial, EU)            | 2013    |                                                       |
| <a href="#">Kadenze</a> (Commercial, USA)            | 2015    | Free for registered users, different course licenses. |
| <a href="#">Khan Academy</a> (Non-profit, USA)       | 2006    | Free, No registration needed, all rights reserved.    |
| <a href="#">Lynda.com</a> (Commercial, USA)          | 1995    |                                                       |
| <a href="#">OpenClassrooms</a> (Commercial, France)  | 2007    | Creative Commons licence, type BY-NC-SA               |
| <a href="#">openHPI</a> , Germany                    | 2012    | All rights reserved                                   |
| <a href="#">OpenLearning</a> (Commercial, Australia) | 2012    |                                                       |
| <a href="#">Open2Study</a> (Commercial, Australia)   | 2013    |                                                       |

# TEACHING APTITUDE

|                                                            |      |                                                          |
|------------------------------------------------------------|------|----------------------------------------------------------|
| <a href="#">Peer to Peer University</a> (Non-profit, USA)  | 2009 | Creative Commons Attribution Share Alike 4.0             |
| <a href="#">POLHN</a> (Non-profit, Western Pacific Region) | 2005 | Free courses, free software                              |
| <a href="#">Shaw Academy</a> (Commercial, Ireland)         | 2013 |                                                          |
| <a href="#">Stanford Online</a> (Non-profit, USA)          | 2006 | Free for registered users, personal/non-commercial usage |
| <a href="#">Udacity</a> (Commercial, USA)                  | 2012 |                                                          |
| <a href="#">Udemy</a> (Commercial, USA)                    | 2010 |                                                          |
| <a href="#">WizIQ</a> (Commercial, India/USA)              | 2007 | Not Free, all rights reserved.                           |

## TEACHING SUPPORT SYSTEM (TEACHING AIDS)

### Meaning of Teaching Support System

A teaching Support System (also called Teaching Aids) is something teachers use in their class to help students improve reading and other skills, reinforce an ability, or to make learning fun.

It is an instructional aid (book, chalk & board, picture), an object (such as a globe, or map, or a specimen) or device (such as a DVD or Computer) used by a teacher to enhance or enliven classroom instruction. Teaching Aids are instructional materials and devices that help the teacher in carrying out the teaching-learning process.

Teaching aids are aids available to the teacher. They cannot replace the teacher by any means. Teaching aids can be used in any of the core classes. There are several types of teaching aids to be utilized in a classroom.

### Need of Teaching Support System (Teaching Aids)

Every individual has a tendency to forget. Proper use of teaching aids helps to retain more concepts permanently.

Students can learn better when they are motivated properly through different teaching aids.

Teaching aids develop the proper image when the students see, hear, taste, and smell properly.

Teaching aids provide a complete example of conceptual thinking.

The teaching aids create an environment of interest for the students.

Teaching aids helps to increase the vocabulary of the students.

Teaching aids helps the teacher to get some time and make learning permanent.

Teaching aids provide direct experience to the students.

## Importance of Teaching Aids

Teaching aids play a very important role in the Teaching-Learning process.

- 1) **Motivation**- teaching aids motivate the students so that they can learn better.
- 2) **Clarification** - Through teaching aids, the teacher clarifies the subject matter more easily.
- 3) **Discouragement of Cramming** - teaching aids can facilitate the proper understanding of the students, which discourages the act of cramming.
- 4) **Increase the Vocabulary** - Teaching aids help to increase the vocabulary of the students more effectively.
- 5) **Saves Time and Money** - When the uses teaching aids, it saves him from the long explanations that may take time for students to understand
- 6) **Classroom Live and active** - Teaching aids make the classroom live and active.
- 7) **Avoids Dullness** – This means the class becomes more active, lively and participatory
- 8) **Direct Experience** - Teaching aids provide direct experience to the students which make them learn easily

## Types of Teaching Support System (Teaching Aids)

As per the new syllabus (updated) of UGC NET Paper 1, The Teaching Support System can be classified into Three Category as follows:

1. **Traditional Support System**
2. **Modern Support System, and**
3. **ICT Based Support System**

## Traditional Teaching Support System (Teaching Aids)

The usual **traditional teaching aids** are blackboards, textbooks, charts, pictures, posters, maps, atlases, globes, flashcards, flip cards, worksheets, science lab apparatus and materials, models, crossword puzzles, quizzes, storytelling, dramatization, one-act plays, dictionaries, encyclopedias, reference books, learning toys and abacus.

### Modern

The modern teaching aids include:

computers, internet surfing, laptops, electronic notebooks, e-readers, computer educational games, online dictionaries, online encyclopedias, picture dictionaries, talking dictionaries, online tests, online e-books, audio-video teaching aids for learning, various subjects including languages; PowerPoint slides and games; flash educational games; Lesson relayed on radio through satellites; lessons on TV relayed by certain TV channels; Educational CDs and DVDs, projectors; interactive white boards also called smart boards etc.

### ICT Based

Information and Communication Technology (ICT) is an electronic means of capturing, processing, storing, communicating information. ICT has proven to be a vital form of teaching in today's scenario since it provides an ease for the teacher and the student to store, retrieve, and manipulate the information. Therefore, this has been encouraging active learning and self-responsibility of learning with the use of ICT teaching aids. It has made it possible to reach the student in any part of the world. Teaching can thus take the shape of Computer-assisted learning (distance learning), videoconferencing, projectors, and even mobiles. This technology has the ability to not only engaging the students in subjective activities but also enhance their cognitive skills<sup>1</sup> (Margaret Cox, Chris Abbott, Mary Webb, Barry Blakeley, Tony Beauchamp, and Valerie Rhodes). ICT includes computers, internet, telephone, radio, and other audio-visual equipment. In recent years, it has been observed

that ICT teaching aids are not merely another medium for the transmission of knowledge but have changed the relationship between teacher or trainer and learner. It requires new skills, competencies, and attitudes amongst those planners, managers, teachers, and trainers who are going to design and develop materials and support learners using these aids. In short, the development of innovative practices and the generation of new competencies in ICT are fast becoming key issues for teacher and trainer training.

## Types of Teaching Support System based on some other Factors

### A. Based on Time-period of use of Teaching Aids

1. Conventional or Traditional Teaching Aids
2. Non-conventional and Modern Teaching Aids

## B. Based on the Sense Organs Involved

Teaching Aids are also called as Audio-Visual Aid. Traditionally used teaching aids stimulated only one sense organ that is either the eyes or ears. However, the contemporary teaching aids provide stimulation to ears and eyes together. The emerging teaching aids involve other sense organs too.

1. Audio Aids
2. Visual Aids
3. Audio-Visual Aids

### 1. Audio Aids

The aids that involve the sense of hearing are called Audio aids. For example - **radio, tape recorder, gramophone, etc.**

### 2. Visual Aids

The aids which use the sense of vision are called Visual aids.

For example - actual objects, models, pictures, charts, maps, flashcards, flannel board, bulletin board, chalkboard, overhead projector, slides, etc. Out of these, blackboard and chalk are the commonest ones.

### 3. Audio-Visual Aids

The aids which involve the sense of vision as well as hearing are called Audio-Visual aids. For example - **television, film projector, film strips, etc.**

## C. Based on Projection or Show

**Projected:** Projected Aids include PowerPoint presentations, slides, film-strips, filmstrip projector, films, transparencies, overhead projector, TV/VCR as they can be projected on the screen or even against a white-washed wall to give an enlarged image of the material. They can be used suitably for both large groups as well as small groups. The large, bright, and colourful larger than life images make them more effective than a non-projected aid.

**Non-Projected:** Those aids which do not require projector electricity or projection screen. Such materials can be simply shown, can be hung or touched, e.g., Chalkboard, Whiteboard, Flannel board, Magnet board, Charts, Posters, Pictorial Materials, and Models, etc. They can hence be used with good results, provide first-hand experiences, and also make the learners actively participate. The non-projected aids add interest and involvement of the learner and ensure better results and longer retention.

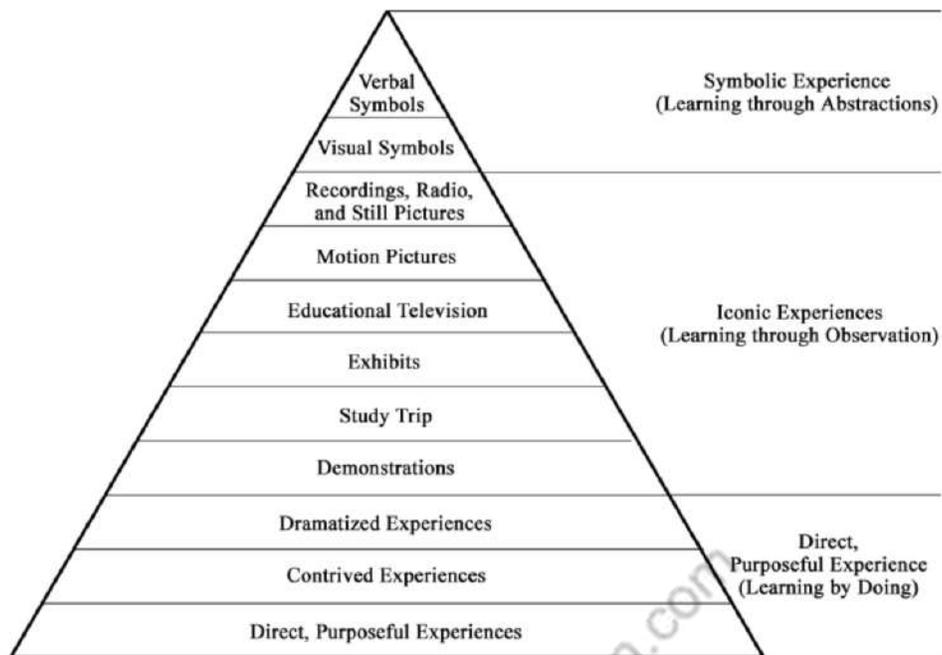
# TEACHING APTITUDE

| Projected aids     | Non-projected aids       |                |                       |                      |                         |
|--------------------|--------------------------|----------------|-----------------------|----------------------|-------------------------|
|                    | Graphic aids             | Display boards | 3-D                   | Audio aids           | Activity aids           |
| Films              | Charts                   | Blackboard     | Models                | Radio                | Field trips             |
| Slides             | Flash cards              | Whiteboard     | Mock ups              | Recordings           | Experimentation         |
| Overhead projector | Posters                  | Bulletin board | Objects and specimens | Digital Audio Player | Dramatics               |
| Epidiastope        | Pictures and photographs | Flannel board  | Puppets               | Television           | Teaching machines       |
| Video projectors   | Graphs                   | Magnetic board |                       | Telephone and mobile | Programmed instructions |
| Film strips        | Maps<br>Diagrams         | Peg board      |                       |                      |                         |

Projected & Non-Projected

## D. Based on the Experience Provided by an Aid

Some teaching aids are concrete in nature. While other teaching aids are more abstract. Prof. Edgar Dale (1959) has given the Cone of Experience, wherein the type of experience provided by various teaching aids has been arranged in a pictorial form.



Dale's Cone of Experience

In moving toward the pinnacle of the Cone from direct, purposeful experiences to verbal symbols, the degree of abstraction gradually increases. As a result, learners become spectators rather than participants. The bottom of the Cone represented “purposeful experience that is seen, handled, tasted, touched, felt, and smelled.” By contrast, at the top of the Cone, verbal symbols (i.e., words) and messages are highly abstract. They do not have a physical resemblance to the objects or ideas. As Dale (1969) wrote, “The word horse as we write it does not look like a horse or sound like a horse or feel like a horse”.

## EVALUATION SYSTEM

Evaluation is a process through which we can get an exact idea of what students actually achieve from their teaching-learning experiences.

UGC defined as “**Evaluation is the process of making judgments based on evidences and interpretations gathered through examination and assessment and on the basis of agreed upon criteria.**”

**Assessment:** is the process of collecting, recording, scoring, describing and interpreting information about learning.

**Examination** is a quantitative measure of learners’ performance and is usually held at the end of the academic session or semester.

According to **Tuckman**: “Evaluation is a process where in the parts, process or outcomes of the programme are examined to see whether they are satisfactory, particularly with reference to the programs stated objectives of our own standards of excellence.”

According to **Maffatt**: “Evaluation is a continuous process and is concerned with more than the formal academic achievement of the students. It is interested in the development of the individual in terms of the desirable behavioural changes in relation to his feelings and actions.”

## Elements of Evaluation System

Five basic components of evaluation system:

- (1) Audience,
- (2) Purpose,
- (3) Questions
- (4) Scope, and
- (5) Resources

To determine these components, the following questions should be considered:

- For what audience is the evaluation being conducted?
- For what purpose is the evaluation being conducted?
- What questions will be asked in the evaluation?
- What is the scope or the evaluation?
- What resources are available to conduct the evaluation?

## Process of Evaluation System

The process of evaluation for teaching learning system comprises of four major steps. The stages are following:

1. Setting Objectives and Criteria
2. Development and Use of Measurement instruments
3. Interpretation of Collected Data
4. Formulation of Judgments and taking of appropriate Action

## Types of Evaluation System

In the various phases of instruction, evaluation is integrated. The four types of evaluation are placement, formative, diagnostic, and summative.

1. **Placement evaluation**: It determines the knowledge and skills the students possess, which

are necessary at the beginning of instruction in a given subject area. The purpose of placement evaluation is to check the aptitude of a candidate for the course or subject, whether the candidate has calibre or not. Various entrance exams can also be conducted for the same purpose. This is also done to see the knowledge base of students, and a teacher can start discussion keeping that in view....

2. **Formative evaluation:** A formative evaluation (also referred to as internal evaluation) is a method for judging the worth of a programme while the programme activities are in progress. It focuses on the process. This evaluation provides the student with feedback regarding his or her success or failure in attaining the instructional objectives. It also identifies the specific learning error that needs to be corrected. For instance, a student learns and scores high on the objective part of the test but fails in the essay part; he is reinforced to exert more effort in answering essay questions in the succeeding tests. For a teacher, formative evaluation provides information for making instructions and remedies more effective. Quizzes, unit tests, and chapter tests are examples of evaluative instruments used in this type of evaluation.
3. **Diagnostic evaluation:** The formative evaluation determines the extent to which students accomplish the learning targets; therefore, it focuses on the measurement of the intended outcomes. The diagnostic evaluation goes a step further and tries to provide an explanation for the possible causes for problems in learning. Diagnostic tests are, thus, more comprehensive and detailed.
4. **Summative evaluation (external evaluation):** Summative evaluation is a method of judging the worth of a programme at the end of the programme activities (summation). The focus is on the outcome. It determines the extent to which objectives of instruction have been achieved and is used for assigning course grades. Summative evaluation generally includes oral reports, projects, term papers, and teacher-made achievement tests, and it shows how good or how satisfactory the student is in accomplishing the objectives of instruction.

### Characteristics of evaluation in education:

1. **Continuous process:** Evaluation is a continuous process. It leads together with Teaching-learning process.
2. **Comprehensive:** Evaluation is comprehensive as it includes everything can be evaluated.
3. **Learners-Centered:** Evaluation is a learner-centered process which gives importance to the learning process, not to the teaching process.
4. **Remedial:** Evaluation comments on the result which helps in remedial work it is not a remedy Evaluation is remedial in nature.
5. **Cooperative process:** Evaluation is a cooperative process involving students, teachers,

- parents, and peer-groups.
6. **Teaching Methods:** Effectiveness of teaching methods is evaluation.
  7. **Common practice:** Evaluation is a common practice among the proper growth of the child mentally and physically.
  8. **Multiple Aspects:** it is concerned with the total personality of students.

## Choice Based Credit System

The CBCS provides an opportunity for the students to choose courses from the prescribed courses comprising core, elective/minor or skill-based courses. The courses can be evaluated following the grading system, which is considered to be better than the conventional marks system. Therefore, it is necessary to introduce uniform grading system in the entire higher education in India. This will benefit the students to move across institutions within India to begin with and across countries. The uniform grading system will also enable potential employers in assessing the performance of the candidates. In order to bring uniformity in evaluation system and computation of the Cumulative Grade Point Average (CGPA) based on student's performance in examinations, the UGC has formulated the guidelines to be followed.

### Advantages of the Choice Based Credit System:

Shift in focus from the teacher-centric to student-centric education.

Student may undertake as many credits as they can cope with (without repeating all courses in a given semester if they fail in one/more courses).

CBCS allows students to choose inter-disciplinary, intra-disciplinary courses, skill-oriented papers (even from other disciplines according to their learning needs, interests and aptitude) and more flexibility for students).

CBCS makes education broad-based and at par with global standards. One can take credits by combining unique combinations. For example, Physics with Economics, Microbiology with Chemistry or Environment Science etc.

CBCS offers flexibility for students to study at different times and at different institutions to complete one course (ease mobility of students). Credits earned at one institution can be transferred.

## Disadvantages:

- Difficult to estimate the exact marks
- Workload of teachers may fluctuate
- Demand good infrastructure for dissemination of education

## Applicability of the Grading System

These guidelines shall apply to all undergraduate and postgraduate level degree, diploma and certificate programmes under the credit system awarded by the Central, State and Deemed to be universities in India.

## Semester System and Choice Based Credit System

The Indian Higher Education Institutions have been moving from the conventional annual system to semester system. Currently many of the institutions have already introduced the choice based credit system. The semester system accelerates the teaching-learning process and enables vertical and horizontal mobility in learning. The credit based semester system provides flexibility in designing curriculum and assigning credits based on the course content and hours of teaching. The choice based credit system provides a 'cafeteria' type approach in which the students can take courses of their choice, learn at their own pace, undergo additional courses and acquire more than the required credits, and adopt an interdisciplinary approach to learning, it is desirable that the HEIs move to CBCS and implement the grading system.

### Types of Courses:

Courses in a programme may be of three kinds: Core, Elective and Foundation.

#### 1. Core Course:

There may be a Core Course in every semester. This is the course which is to be compulsorily studied by a student as a core requirement to complete the requirement of a programme in a said discipline of study.

#### 2. Elective Course:

Elective course is a course which can be chosen from a pool of papers. It may be:

- Supportive to the discipline of study
- Providing an expanded scope
- Enabling an exposure to some other discipline/domain

- Nurturing student's proficiency/skill.

An elective may be “Generic Elective” focusing on those courses which add generic proficiency to the students. An elective may be “Discipline centric” or may be chosen from an unrelated discipline. It may be called an “Open Elective.”

### 3. Foundation Course:

The Foundation Courses may be of two kinds: Compulsory Foundation and Elective foundation. “Compulsory Foundation” courses are the courses based upon the content that leads to Knowledge enhancement. They are mandatory for all disciplines. Elective Foundation courses are value-based and are aimed at man-making education.

## Examination and Assessment

The Higher Educational Institutions (HEIs) are currently following various methods for examination and assessment suitable for the courses and programmes as approved by their respective statutory bodies. In assessing the performance of the students in examinations, the usual approach is to award marks based on the examinations conducted at various stages (sessional, mid-term, end-semester etc.) in a semester. Some of the HEIs convert these marks

to letter grades based on absolute or relative grading system and award the grades. There is a marked variation across the colleges and universities in the number of grades, grade points, letter grades used, which creates difficulties in comparing students across the institutions. The UGC recommends the following system to be implemented in awarding the grades and CGPA under the credit-based semester system.

### Letter Grades and Grade Points:

- Two methods -relative grading or absolute grading– have been in vogue for awarding grades in a course. The relative grading is based on the distribution (usually normal distribution) of marks obtained by all the students of the course and the grades are awarded based on a cut-off marks or percentile. Under the absolute grading, the marks are converted to grades based on pre-determined class intervals. To implement the following grading system, the colleges and universities can use any one of the above methods.
- The UGC recommends a 10-point grading system with the following letter grades as given below:

#### Grades and Grade Points

| Letter Grade | Grade Point |
|--------------|-------------|
|--------------|-------------|

# TEACHING APTITUDE

|                   |    |
|-------------------|----|
| O (Outstanding)   | 10 |
| A+(Excellent)     | 9  |
| A (Very Good)     | 8  |
| B+(Good)          | 7  |
| B (Above Average) | 6  |
| C (Average)       | 5  |
| P (Pass)          | 4  |
| F(Fail)           | 0  |
| Ab (Absent)       | 0  |

- i. A student obtaining Grade F shall be considered failed and will be required to reappear in the examination.
- ii. For non-credit courses 'Satisfactory' or "Unsatisfactory' shall be indicated instead of the letter grade and this will not be counted for the computation of SGPA/CGPA.
- iii. The Universities can decide on the grade or percentage of marks required to pass in a course and also the CGPA required to qualify for a degree taking into consideration the recommendations of the statutory professional councils such as AICTE, MCI, BCI, NCTE etc.,
- iv. The statutory requirement for eligibility to enter as assistant professor in colleges and universities in the disciplines of arts, science, commerce etc., is a minimum average mark of 50% and 55% in relevant postgraduate degree respectively for reserved and general category. Hence, it is recommended that the cut-off marks for grade B shall not be less than 50% and for grade B+, it should not be less than 55% under the absolute grading system. Similarly, cut-off marks shall be fixed for grade B and B+ based on the recommendation of the statutory bodies (AICTE, NCTE etc.,) of the relevant disciplines.

## Fairness in Assessment:

Assessment is an integral part of system of education as it is instrumental in identifying and certifying the academic standards accomplished by a student and projecting them far and wide as an objective and impartial indicator of a student's performance. Thus, it becomes bounden duty of a University to ensure that it is carried out in fair manner. In this regard, UGC recommends the following system of checks and balances which would enable Universities effectively and fairly

carry out the process of assessment and examination.

- (i) In case of at least 50% of core courses offered in different programmes across the disciplines, the assessment of the theoretical component towards the end of the semester should be undertaken by external examiners from outside the university conducting examination, who may be appointed by the competent authority. In such courses, the question papers will be set as well as assessed by external examiners.
- (ii) In case of the assessment of practical component of such core courses, the team of examiners should be constituted on 50 – 50 % basis. i.e. half of the examiners in the team should be invited from outside the university conducting examination.
- (iii) In case of the assessment of project reports / thesis / dissertation etc. the work should be undertaken by internal as well as external examiners.

## Key Words under CBCS

**Academic Year:** Two consecutive (one odd + one even) semesters constitute one academic year.

**Choice Based Credit System (CBCS):** The CBCS provides choice for students to select from the prescribed courses (core, elective or minor or soft skill courses).

**Course:** Usually referred to, as ‘papers’ is a component of a programme. All courses need not carry the same weight. The courses should define learning objectives and learning outcomes. A course may be designed to comprise lectures/ tutorials/laboratory work/ field work/ outreach activities/ project work/ vocational training/viva/ seminars/ term papers/assignments/ presentations/ self-study etc. or a combination of some of these.

**Credit Based Semester System (CBSS):** Under the CBSS, the requirement for awarding a degree or diploma or certificate is prescribed in terms of number of credits to be completed by the students.

**Credit Point:** It is the product of grade point and number of credits for a course.

**Credit:** A unit by which the course work is measured. It determines the number of hours of instructions required per week. One credit is equivalent to one hour of teaching (lecture or tutorial) or two hours of practical work/field work per week.

**Cumulative Grade Point Average (CGPA):** It is a measure of overall cumulative performance of a student over all semesters. The CGPA is the ratio of total credit points secured by a student in various courses in all semesters and the sum of the total credits of all courses in all the semesters. It is expressed up to two decimal places.

**Grade Point:** It is a numerical weight allotted to each letter grade on a 10-point scale.

**Letter Grade:** It is an index of the performance of students in a said course. Grades are denoted by letters O, A+, A, B+, B, C, P and F.

**Programme:** An educational programme leading to award of a Degree, diploma or certificate.

**Semester Grade Point Average (SGPA):** It is a measure of performance of work done in a semester. It is ratio of total credit points secured by a student in various courses registered in a semester and the total course credits taken during that semester. It shall be expressed up to two decimal places.

**Semester:** Each semester will consist of 15-18 weeks of academic work equivalent to 90 actual teaching days. The odd semester may be scheduled from July to December and even semester from January to June.

**Transcript or Grade Card or Certificate:** Based on the grades earned, a grade certificate shall be issued to all the registered students after every semester. The grade certificate will display the course details (code, title, number of credits, grade secured) along with SGPA of that semester and CGPA earned till that semester.

## COMPUTER BASED TEST

Computer based Test (CBT) simply refers to tests and assessments conducted through the use of the organized systems on computers. Computer Based tests have the ability to automate a very time-consuming task, marking, and monitoring progress. Computer Based test as a test that can be used in a supervised or non-supervised environment and can allow students to check their own progress through self-assessment. It can also be used for testing lower-order skills (such as knowledge, understanding and application); it can also be used for testing higher-order skills to improve the students' analysis, synthesis and evaluation skills with more complex application software.

Computer Based test has a range of activities which include the delivery, marking, and analysis of all or part of the student assessment process using computer technologies. Some key reasons for using computer-based test are to increase the frequency of assessment, motivating students to learn and encouraging skills practice, to broaden the range of knowledge assessed. It also increases feedback to students and lecturers and extend the range of assessment methods. Increase in objectivity, consistency and reduction in marking loads of script and other cases resulting in administrative efficiency.

The use of CBT for entrance examinations in education, military training, and certification

examinations by professional groups and promotional examinations in various stages and categories of life cannot be overstressed in this century. Computer-based tests as a way to increasingly provide a quick method of marking summative assessments for large groups of students.

## Advantages of CBT:

CBT system is not an alternative method for conducting examinations but represents an important qualitative shift away from traditional methods of testing students through “objective” type as popularly called. Advantages available in computer-based test does not mean that CBTs are intrinsically better than other tests methods as testing format does not affect test scores of students and as such CBT can be considered a valid and acceptable testing mode. Advantages of computer-based test are numerous compared to its disadvantages.

They include, among others:

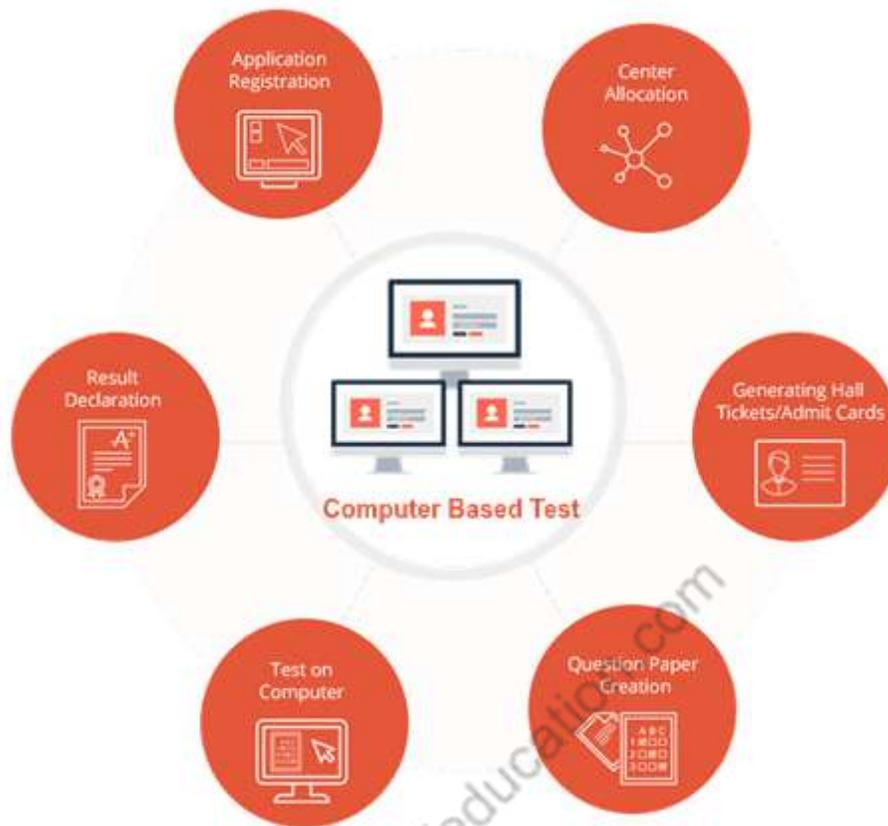
- ✓ **Efficiency:** It takes less time for teachers to prepare, distribute, and grade online tests compared to paper tests. Also, it is easily scalable, whether you are assessing 20 students or 2,000.
- ✓ **Convenience:** Students can take the assessment at a convenient time and place they choose, rather than having to take it at a fixed schedule.
- ✓ **Automatic Scoring with Instant Feedback:** A computer can automatically score the assessment and provide students with immediate feedback on their performance.
- ✓ **Analytics and Reports:** The computer-based examination software enables you to make data-driven decisions as it collects a large amount of data that can help you identify who is having trouble and also improve the assessments over time.
- ✓ **Security Configurations:** Online assessment creators have a variety of features to prevent cheating and unauthorized access.
- ✓ **Less human error:** Computer-based assessment removes a significant amount of human error, such as grading errors.
- ✓ **Re-usability:** Create tests and even individual questions once and reuse them easily on other assessments.

## Disadvantages of CBT:

Despite the numerous advantages that CBT has brought to the educational system. It still has its own shortcomings. Its disadvantages include the following among others:

1. CBT is often interpreted as simple multiple-choice tests, only suitable for the repetition of factual knowledge but not to address higher cognitive levels like understanding, synthesis, analysis or judgment.
2. the quality of examinations constricted to closed, automatically valuated questions are often seen as a didactical step backward and as being not worthy for a higher level of academics.
3. students with insufficient computer literacy or differences in computer performance may be disadvantaged despite the expertise/understanding of such students in the course content.
4. there may be a higher risk of (e-) cheating, e.g., by hacking the database of the question items, risk of a total loss of examination data, or lower security of sensitive personal data.
5. some lecturers may be discouraged by the time consumption caused by the initial development of numerous questions with well-tested scoring parameters, subject to laborious quality assurance.

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(Source –GingerWeb)

## Types of CBT

**Offline assessments:** These are the assessments that are created on a computer-based test software and are available only on a single device. These tests are offline, so a single set of tests cannot be taken on two devices simultaneously, and the responses are stored in a database. The grades are assigned manually, and the reports are prepared much later.

**Online assessments:** Online assessments or online computer-based tests are created using online assessment software so they can be taken anytime, anywhere, and on any device.

Online assessment in education is vital since a single set of tests or assessments can be attempted on many devices at the same time. The answers can be automatically graded, and the responses are stored in auto-generated reports.

The reports can be visited anytime by instructors to review individual or group performances.

You can easily create reports using an online assessment tool.

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### Computer Based Test Vs. Paper Based Test

| Shortcomings           | Paper-Based Assessments                                                             | Computer-Based Assessments                                                                                                                           |
|------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|
| Creation               | It takes a longer time to create.                                                   | Can be created in minutes with templates & ready-to-use questions                                                                                    |
| Wastage                | Includes heaps of test papers                                                       | There is no paperwork involved in the process                                                                                                        |
| Grading                | Can take hours to grade                                                             | Grades automatically with automated grading                                                                                                          |
| Feedback               | Individual feedback can take hours                                                  | Feedback can be provided instantly.                                                                                                                  |
| Results                | Due to manual grading and scoring of papers, results are often delayed by days.     | Results are displayed instantly after completion.<br>Results can also be personalized.                                                               |
| Reports                | The reports have to be generated after all the assesses have completed their tests. | The detailed reports & statistics are automatically generated for all the assesses.                                                                  |
| Performance Evaluation | Difficult to compare individual performances and analyse group performances.        | With auto-generated reports & statistics, it becomes easier to analyse overall student performance and gauge the complexity of individual questions. |

|                  |                                                              |                                                                                                                                                        |
|------------------|--------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------|
| Risk of cheating | Always has to be invigilated physically to prevent cheating. | With better security controls like time-limits on questions, question randomization, and answer shuffling, there is no need for physical invigilation. |
| Security         | Can be mishandled                                            | Can be prevented from unauthorized access with password protection                                                                                     |
| Accessibility    | Confined to physical spaces                                  | Can be accessed on any device.                                                                                                                         |

## Innovations in Evaluation System

Traditionally, many teachers have evaluated their students' knowledge by giving examinations and papers, often only at the middle and end of the quarter. As a result, a professor lecturing to a large introductory class might not recognize until final exams are finished that students consistently confused the essential and closely related ideas.

### Some Important Innovation in Evaluation Systems:

**Concept maps** provide a visual representation of connections between concepts that students have learned. These concepts are connected by directional, labeled links to show the relationships

between them. Concept maps are excellent tools that can provide instructors with a formative assessment of students' learning and misunderstandings after the students were introduced to the new material. For example, the instructor can post an incomplete concept map where students are asked to fill in the blanks to build a complete map, which is then submitted to an instructor in class or via an online dropbox.

**Concept Tests** are multiple-choice questions designed to test the understanding of a single concept. They are effective at identifying common student misconceptions surrounding traditionally difficult concepts in science and engineering and have been shown to enhance student comprehension of fundamental concepts. The questions are posed during the lecture immediately after the key concept has been described or discussed. Students work independently to arrive at an answer and then try to persuade their neighbors in the lecture room that they are correct. Finally, all the students offer their answers. The instructor confirms the correct answer, and the class can discuss why it is correct and how some students were misled. This form of peer instruction is offering students and their instructor insight into how well they understand the various key concept and allows them to identify and address popular misconceptions.

**e-Portfolio:** An e-Portfolio is an online space where students can store and organize artifacts that they have produced in the course, such as written assignments, images, videos, and so on.

They then use the e-Portfolio to reflect on their learning experiences. An e-Portfolio requires students to pause and reflect on their learning, often by making explicit connections between different learning experiences. This process deepens their learning and has the added benefit of helping them to chronicle their learning: they can look back on earlier work in their e-Portfolio and readily see how much they have learned and how far they have progressed in the course. An e-Portfolio helps students to “see” connections within various components of a course, or among their various courses.

**Podcasts and Vlog:** A podcast or vlog project encourages students to take their identifications, analyses, reports, diagrams, etc. to a real-world, digital level by creating a visual/verbal file for submission that activates and authenticates their learning. This can be done individually or collaboratively. Podcasts and vlogs are similar to poster presentations in terms of the content-based orientations of them, yet they take it to a different level by creating and facilitating an extension of the classroom for audiences beyond the students’ immediate classmates and immediate teacher. This type of assignment encourages professional writing and presentation processes (such as oral and visual communication skills), but it also fosters networking and the building of connections for the students and their subject matter.

**Talk Show Performance:** A Talk Show Performance is an authentic version of the more traditional in-class presentation as it directs students to take on and embody their learning for an interactive, live, or record discussion. It can be character-based (i.e., students taking on and acting as an individual in their discipline would, talking about the issues, analyses, diagrams, etc. and answering questions as this person would) or it can be self-based (i.e. students perform as themselves, presenting the materials and answering questions as they themselves would be based on their developing knowledge).

**Minute Paper:** Pose one to two questions in which students identify the most significant things they have learned from a given lecture, discussion, or assignment. Give students one to two minutes to write a response on an index card or paper. Collect their responses and look them over quickly. Their answers can help you to determine if they are successfully identifying what you view as most important.

**Artificial Intelligence (AI):** In AI assessment, a software system infers problem-specific rules for automated scoring from examples of instructor grading of student assignments.

Initially, AI techniques are applied to learn how an instructor grades a problem. The instructor evaluates a sample set of student responses, and the system creates a computer model incorporating rules it inferred about the instructor’s grading decisions. The model is then used to grade another students’ work.

Such techniques are applied to student work in a number of disciplines, for example, to

mathematical problem-solving, to programming in computer science, and increasingly to essays.

The strengths of AI assessment are efficiency, consistency in applying the same criteria across students, and immediate and detailed feedback on performance.

Today, AI assessment is most useful as one part of an assessment process and for enhancing learning, rather than making final, authoritative, high-stakes decisions about student performance. Key considerations are sufficient transparency of the rules applied, human scoring establishing the validity of machine-generated scores, and ongoing quality control.

**Just-in-time Teaching:** Just-in-time teaching actively engages students in learning new material and gives the instructor information on students' existing knowledge before teaching on the topic begins.

First, students respond to a Web-based set of questions, usually open-ended thought questions or exercises, about new material before it is covered in class. After reviewing student submissions, the instructor adjusts teaching activities to meaningfully address student shortcomings and misconceptions – just in time in the learning process.

Through these warm-up questions and exercises, students and instructors are primed for a more productive instructional experience. In-class and out-of-class learning activities become more interwoven and pertinent, enhancing learning for students whatever their initial level, motivating active learning, and improving classroom climate.

This interactive technique also provides baseline assessment of the state of students' initial understanding of the content to be learned, including misconceptions. Such baseline information can be compared to similar information after instruction not only to assess individual student learning, but especially the effectiveness of instruction.

**Assessment Rubrics:** A rubric for assessment, also called a scoring guide, is a tool used to interpret and grade students on any kind of work against criteria and standards. An assessment rubric provides the means to increase objectivity in assessment and reduce subjectivity; presents a clear expectation on the assessments, and relates it to learning outcomes; ensures consistency, transparency and fairness in the marking process across course instructors for the same assessment type; efficiently grades or marks many assessments for a large group of students; defines clear guidelines for moderation; and provides more objective data for analytics.

Usually in the form of a grid, a grading/ marking/ scoring rubric combines the elements of performance, criteria and descriptors to create an assessment tool for the course instructor.

The assessment criteria define the characteristics or traits to be judged which should be derived from the course learning outcomes and indicate what is expected to be demonstrated.

**Level of performance** is the rating or measure on the degree of achievement on a particular criterion as specified by the rubric, i.e. excellent/good/satisfactory/poor etc.

**Descriptors** identify the qualities required to demonstrate achievement of each level of performance for each criterion. Listed in the form of short explanations, they provide guidance on the actual judgement on the assessment to match students' performance.

An illustration below provides a few criteria, levels of performance and descriptors

| Criteria                  | Performance (Marks)                                                                                      |                                                                                                                      |                                                                                                                 |
|---------------------------|----------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|                           | 5                                                                                                        | 3                                                                                                                    | 1                                                                                                               |
| Content                   | The material presented was complete, precise and well supported by facts and figures                     | The material presented was partially complete and was off-topic at some places                                       | The material presented was incomplete and largely off-topic                                                     |
| Knowledge & Understanding | Seminar demonstrated thorough knowledge and applicability of facts, terms and concepts                   | Seminar demonstrated moderate knowledge and applicability of facts, terms and concepts                               | Seminar demonstrated limited knowledge and applicability of facts, terms and concepts                           |
| Discussion                | The student actively participated in the discussion and was able to give a convincing reply to questions | The student had a moderate participation in the discussion and was able to give a convincing reply to some questions | The student did not participate in the discussion and was not able to give a convincing reply to most questions |

Figure-8 : Seminar Presentation Rubric

## Use of Technological Interventions

With the proliferation of different types of access devices, especially mobile access devices, technology has the potential to augment traditional classroom practices and revolutionize learning and evaluation methods. Technology, in fact can be an important driver to enable lifelong learning. Learning and engagement of students is facilitated by use of technology through several modes such as synchronous learning, semi-synchronous learning, blended learning, collaborative learning, flipped classroom etc. MOOC's, especially provided through SWAYAM, are a window of opportunity for lifelong learning and are offered through technology-based platforms. Learning management systems (LMS) are used by institutions to integrate the entire teaching, learning and evaluation process. The Learning Management System may be used by higher educational institutions to deliver academic content in blended form and to assess learning through thesis, assignments etc. Open source learning management systems such as Moodle, Edmodo may be used for posting content in the form of videos, audios, e-learning modules, live class sessions etc. Use of plagiarism detection software is highly recommended in order to check originality of content.

In the conduct of examinations, universities face tremendous challenges such as need for trained manpower, distribution of question paper without delays and errors, delays in evaluation of answer scripts, lack of infrastructure to conduct examinations at a large scale, non-availability of faculty members for assessment, security issues faced during paper setting and paper distribution, tampering of certificates and answer scripts etc.

For a typical examination department of an institution, automation is required right from registration of student to convocation through an integrated system. In fact, steps must be taken to implement a complete examination management system that considers the complete life cycle of examination process. The use of technology will reduce dependency on human intervention and be error free. The following functions have to be automated:

- i. Registration of students and generating unique PRN,
- ii. Filling up of examination form,
- iii. Generation of seat numbers and admit cards/hall tickets,
- iv. Preparation of a list of paper setter,
- v. Use of question bank system to draw question sets, question paper generation,
- vi. Online distribution of question papers on the day of examination with a system of encryption,
- vii. Barcode system for answer books (this will eliminate issues related to errors, avoid malpractices, etc.),
- viii. Digitization of answer scripts and onscreen evaluation of answer sheets,
- ix. Tracking of students' performance,
- x. Marks submission through online software,
- xi. Viewing of results through an online system,
- xii. Online verification and revaluation system

The methods and techniques mentioned above can be considered as Important Innovations in evaluation systems. There is some other innovative way to evaluate the learners. Please go through internet and search or refer some other e-contents, and books.