



PADHO TO AISE

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CHAPTER-1
TEACHING APTITUDE



PADHO TO AISE



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1. TEACHING

CONCEPT OF TEACHING

Teaching learning is a communication between two or more persons who influence each other by their ideas and learn something in the process of interaction. It is a process in which the learner, teacher, curriculum and other related variables are organized in a systematic way to attain some pre-determined goal. Teaching can be analysed in terms of teacher behaviour at three levels, namely, component teaching skills, general teaching behaviours and specific teaching behaviours.

OBJECTIVES OF TEACHING

The general objectives of teaching are:

To develop all round personality of the learner through the curriculum.

2. To shape the behaviour of the learner in a desired direction.

3. To help the student to adjust and live harmoniously in the new situation environment.

4. To encourage the student to learn and think for themselves to solve the problems.

5. To acquaint the student with the content of the subject to be taught.

The specific objectives of teaching are as follows:

- To Develop Critical and Logical Thinking
- To Create Interest in the Study

- To Develop Understanding
- To Develop of Knowledge

Role of a Teacher:

- Facilitating students in their efforts to learn without directly instructing them on any new concepts.
- Being sensitive to the previous experiences of each and every student in the class.
- Providing authentic (real-world and contextual) tasks.
- Providing as many materials and experiences from the immediate environment as possible. Manipulating materials and events so that the students can gather more experience.
- Providing real-world, context-based learning environments rather than predetermined instructional sequences for making learning more realistic, relevant and contextual.
- Focussing on realistic approaches to solve real-world problems.
- Providing or/and encouraging the students to come out with multiple representations or alternative solutions when engaged in solving a problem.
- Allowing students to ask questions and encouraging them to raise intelligent questions.
- Fostering reflective practice. By encouraging raising intelligent questions, indirectly put pressure to think reflectively.
- Supporting cooperative and collaborative learning in the classroom.
- Connecting the activities in the school with those outside the school.
- Encouraging self-analysis and self-assessment of students' learning progress.

THREE LEVELS OF TEACHING

Memory Level	<ul style="list-style-type: none">• Memory level of teaching means committing factual information to memory.• Memory level teaching or learning is the least thoughtful.• Recall, recognition and retention are specially emphasized in this form of teaching or learning
Understanding Level	<ul style="list-style-type: none">• It is reached when thorough understanding of the subject matter is gained through planned learning.• It involves exploration, presentation, assimilation, organization and recitation through oral presentation or in the form of a written paper.
Reflective level	<ul style="list-style-type: none">• It consists of two phases: 1. Problem raising and 2. Problem solving.• Teaching-learning at reflective level involves careful and critical examination of an idea or problem through the 'problem solving approach'.

Teaching can be Direct or Indirect

- As the teachers use such methods as lecture, demonstration, etc and engages students in face – to – face interaction, they are teaching them directly.
- Conversely, when they use active methods like role-play, project, assignment, inquiry or other such activities, they are teaching them indirectly.

Teaching can be Vertical or Horizontal

- Depending on the objectives of teaching, teachers may lead students deep into the topic.
- This type of teaching is known as vertical teaching.
- Conversely, if the teachers teach one topic and then move on to more and more topics, they are resorting to horizontal teaching.

Teaching may be Planned or Unplanned

- Traditionally, teachers plan for instruction before they go to the classroom for teaching.
- However, with the coming of active leaning methods, no strict planning is possible as one is not clear in advance what could be the possible way of organizing teaching learning activities.

Components of Teaching

Teacher	Teacher plays a vital and important role of planning, organizing leading and controlling the teaching in order to provide full learning facilities to the students
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Students	Students are dependent upon the teachers for the learning strategies and the content chosen by the teacher. Pupils are there to act according to the planning and organization of teacher to maximize learning.
The Curriculum	The curriculum is a medium of interaction between the students and teachers. So it is a intervening variable to facilitate learning. There are methods, teaching strategies or techniques of teaching through which various interactions between students and teachers take place.

Techniques for Better Classroom Discipline

1. Focusing
2. Direct Instruction
3. Monitoring
4. Modelling
5. Non-Verbal Cuing
6. Environmental Control

7. Low-Profile Intervention

8. Assertive Discipline

9. Consistently

10. Rule avoidance

Qualities of Effective Teachers

1. Role of Caring

2. Listening

3. Understanding

4. Knowing Students

5. Role of Fairness and Respect

6. Social Interactions with Students

7. Promotion of Enthusiasm and Motivation for Learning

2. Learner's Characteristics

- Learning happens naturally while we are experiencing the world around us with our senses. Research breakthroughs in medical science have informed us on how the brain functions in the state of learning. Our short-term memory filters and processes those experiences and assigns meaning to the sensory information it receives. Some of that information is transferred to our long-term memory, i.e., the repository of everything we know and have experienced in our lives. When we need that knowledge, we recall it by the use of memory and references. The process is illustrated below.

1. Behaviorism

The learning theory of behaviorism focuses on behaviors that are objectively observable and disregards subjective, independent activities of the mind. Proponents of behaviorism define learning as **conditioning** or acquisition of new behaviour in a given environment and have proved experimentally that conditioning is a universal learning process.

i. **Classic conditioning** theory, also called **Pavlonian** theory after its Russian proponent Ivan Pavlov, pertains to learning through association. It occurs when a natural, biological reflex associated with a particular conditioned stimulus (CS) is triggered in response to an unconditioned stimulus (US).

ii. **Behavioral or operant conditioning** occurs when a response to a stimulus is reinforced. Operant refers to any

behavior that acts on the environment and leads to consequences. Operant conditioning is a simple feedback system working on the theory, that a reward or reinforcement following the response to a stimulus makes its occurrence more probable/likely in the future. This theory is based on B.F. Skinner's philosophy of 'radical behaviorism'.

Criticisms of Behaviorism

- i.** It does not explain those kinds of learning which involve mindfulness or cognition, since it disregards the activities of the mind.
- ii.** It does not explain learning of the kind where there is no reinforcement, e.g., the recognition of new language patterns by young children.
- iii.** Research on animals has shown that reinforced behavior patterns can possibly be adapted to changed/new information. A rat that has previously mastered a behavior pattern to manoeuvre a maze through reinforcements can shift its behavior if the layout of the maze is changed.

2. Cognitivism

The learning theory of cognitivism focuses on inner mental activities that are essential for cognitive development. It is concerned with opening the "black box" of the human mind to determine how processes such as conscious thought, memory, knowing, conversation, decision-making, emotion and problem-solving occur. Developed by Jean Piaget and contributed to by Bloom, Bruner and Ausubel, this theory propounds that people are not "programmed animals" that

merely respond to environmental stimuli; they are rational beings whose actions are a consequence of thinking and a learner constructs cognitive pathways to understand and respond physically to experiences. Cognitivism replaced behaviourisms in 1960s as the dominant paradigm that gave the metaphor of mind as a computer system where information goes in, gets processed and leads to certain outcomes.

3. Constructivism

Constructivism, propounded by John Dewey, Jean Piaget, Jerome Bruner, Lev Vygotsky, and others, is based on the idea that learning is a constructive process where people actively construct or create their own understanding or subjective representations of objective reality of the world and link what they already know from their past experiences with new information and experiences to construct their own meaning. So, the learner is viewed as information constructor.

4. Humanism

Humanistic theory of learning is majorly based on the work of Abraham Maslow (1908–1970) and Carl Rogers (1902–1987). It views the learner as an individual subject with affective and cognitive needs; and learning as a personal endeavour with ‘intentionality and values’ (Huitt, 2001) to fulfil one’s individual potential, or reach self-actualization through a natural holistic process while growing and developing over the lifespan.

5. Connectivism

Connectivism is a contemporary learning theory which focuses on 21st Century Skills and gives more autonomy to students in the way they choose to learn. This theory has developed to adapt to the vast digital and technological advancement; and, is based upon the idea that people process information by forming connections and interacting. It suggests that people no longer stop learning after formal education; rather, they continue to increase their knowledge base through technology-enabled access to a huge reservoir of information, experience new themes and acquire new skills.

JOHN CARROLL'S MODEL OF SCHOOL LEARNING

It states:

School learning (f) = Time spent / Time needed where,

Time spent = Opportunity and Perseverance

Time needed = Aptitude,

Prerequisite knowledge, and Quality of instruction Robert Slavin revised John Carroll's model of school learning to produce the QAIT Model of instruction in which those elements that were not under the control of educators were eliminated, while those that could be altered or modified by teachers were retained or redefined.

1. Quality of instruction
2. Appropriate levels of instruction (redefinition of Carroll's student characteristic 'ability to understand instruction')
3. Incentive (redefinition of Carroll's student behaviour 'perseverance')

4. Time (equivalent to Carroll's variable Opportunity)

LEARNER'S CHARACTERISTICS

Awareness of learner's characteristics helps the teacher/instructor to determine what approach, methods and strategies to use in academic instruction. Learner information can be obtained from surveys, interviews, observations and performance statistics of knowledge and skills.

CHARACTERISTICS OF ADOLESCENT LEARNERS

Learner characteristics can be personal, physical, academic, social, emotional, moral and cognitive in nature. The young adolescent is going through a distinctive phase of physical, emotional, intellectual, moral and social changes simultaneously, with the academic development. All of these changes must be taken into account while directing their learning, and instructional methods and practices must be remodelled accordingly to optimise learning outcomes. It is important to know the exact characteristics manifested by all these changes in adolescents.

Personal Characteristics

These relate to demographic elements such as:

1. Age
2. Gender
3. Level of maturity
4. Language

5. Socio-economic status
6. Cultural background
7. Size and influence of family
8. Specific skills or impairments to learning pertinent to the particular group/community/ fraternity/ nationality they may be constituents of

Physical/Physiological Characteristics

There include:

1. Restlessness and fatigue due to hormonal changes
2. Sudden outbursts of physical activity to release energy because of spurt in energy levels
3. Growing sexual awareness resulting in sensitivity to touch
4. Concern about physical changes and appearance
5. Physical vulnerability and poor health resulting from dietary fads and/or engaging in risky behaviours
6. Awkward, uncoordinated body movements caused by physical changes and consciousness of those

Academic Characteristics

1. Goal and success oriented learning style; fixing learning goals for self
2. Propensity for high achievement when challenged and engaged
3. Preference for active over passive learning experiences

4. Interest in interacting with peers during learning activities
5. Demanding relevance of what is being taught to actual learning

6. Increased capacity for higher levels of humor which may be misunderstood as sarcasm or offence by adults

7. Applying prior knowledge to learning processes

Cognitive Characteristics

Cognitive characteristics of adolescent learners include:

1. Meta-cognition, (awareness and understanding of one's own thought processes)

2. Independent and rational thought

3. Shift from concrete to abstract thinking

4. Intense curiosity and eagerness to learn about a variety of interesting, useful and personally relevant topics, a chosen few of which are sustained over the long term

5. Penchant for exploration and experimentation

6. Ability to be self-reflective

7. Ability to analyse, integrate and evaluate concepts and theories about the relationship between individual and society

Emotional Characteristics

1. Unpredictability because of mood swings marked by peaks of intensity and troughs of despair

2. Overpowering desire to discover independence and individual adult identity; and accepting only specific mediation

3. Deep concern about physical growth and maturity
4. Strong beliefs
5. Holding their personal problems, feelings, and experiences unique
6. Extreme consciousness of self-image and its protection
7. Heightened sensitivity and overreaction to criticism, ridicule, embarrassment, and rejection
8. Tendency to rebel against authority
9. Development of specific/personal interests
10. Motivation to know and learn
11. Defined attitude toward learning and subject matter
12. Anxiety
13. Attribution of success (i.e., locus of control)

Social Characteristics

1. Craving for social acceptance
2. Seeking approval of peers and others with attention-getting behaviours
3. Modelling behaviour and communication after that of older mates and parents/ other adults to a much lesser degree
4. Experimenting with ways of talking and acting as part of searching for a social position with peers
5. Seeking racial and ethnic identity and drawn to peers who share the same background

- . Exploring questions of sexual identity in overt or covert ways
- 7. Anxious and intimidated by the initial middle school experience
- 8. Fondness for popular culture and interest in following fads
- 9. Seeking approval of peers and others with attention-getting behaviors
- 10. Vacillating between demand for independence and desire for guidance and protection corresponding to the growth of interpersonal skills

Moral Characteristics

1. Moral characteristics encompass the ability to comprehend ethical matters and challenge beliefs, cultural manifestations, religious teachings, etc.
2. As adolescents mature, they begin to recognize their democratic rights and responsibilities, displaying an inclination towards political processes.
3. Frustration with societal problems and the sluggishness of change may arise, often without realizing that social transformation is neither simple nor swift.
4. The search for reliable and trustworthy adult role models becomes paramount, exerting a significant influence on one's own behaviour and values.
5. While relying on parents and influential adults for moral guidance, individuals still retain their own opinions and perspectives.

6. Swift to judge others, yet reluctant and sluggish when it comes to acknowledging personal shortcomings.

7. Exhibiting compassion towards marginalized individuals and demonstrating concerns about animal welfare and environmental issues.

CHARACTERISTICS OF ADULT LEARNERS

Are Goal-driven: Adults actively seek out learning courses and activities that will aid them in achieving their life goals. They apply their extensive knowledge to their learning experiences.

Seek Autonomy: Adult learners value independence and actively seek options and choices in their learning journey.

Prefer Experiential Learning: Adults favor hands-on, practical learning experiences over passive lectures or listening. They thrive when they can actively engage and participate in their learning.

Are Purposeful: Adults have a strong desire to understand the purpose and motive behind any learning activity. They seek relevance and meaning in their educational pursuits.

Strive for Competence and Mastery: Adults strive to attain competence and mastery in workplace skills to enhance their confidence and self-esteem.

Embrace a Holistic Perspective: Adult learners have a big-picture orientation, understanding how the smaller components fit into the larger context of what they are learning.

Are Results-oriented: Adults focus on achieving tangible outcomes and results in their learning endeavors.

Take Responsibility for Self: Adult learners take ownership of their learning and assume responsibility for their progress and development.

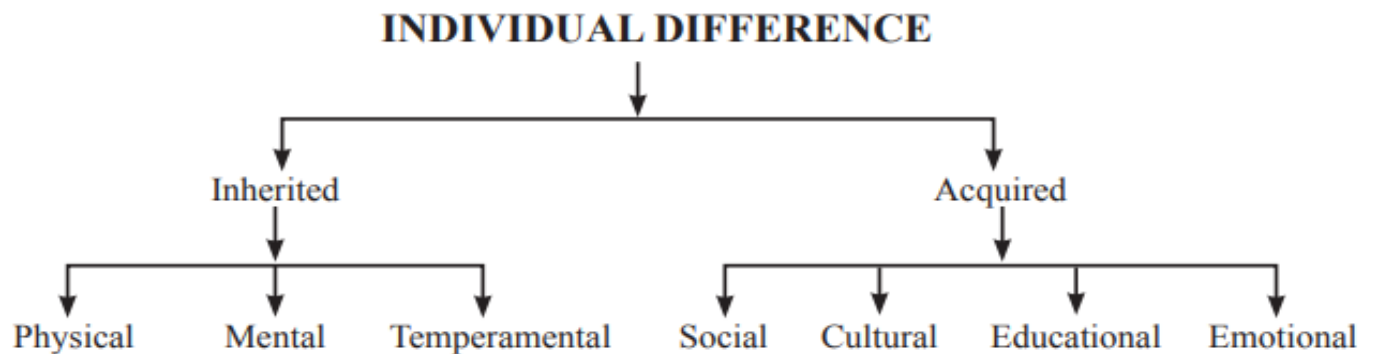
Face Emotional Barriers: Adult learners may encounter emotional barriers that can impede their learning process.

Experience External Stressors: Adults may face stress from external responsibilities and obligations, which can affect their ability to dedicate time and energy to learning.

Have Physical Limitations: Advanced age and/or physical limitations can pose challenges for adult learners, impacting their learning experience.

Crave Community: Self-directed adult learners often seek out learning communities that provide opportunities for interaction, discussion, and sharing of ideas on relevant topics and issues.

S. No.	Adult learners	Young learners
1.	Problem centred	Subject oriented; focus on course completion
2.	Result oriented	Future oriented
3.	Self-directed	Dependent upon adults for direction
4.	Sceptical about new information	Likely to accept new information
5.	Take responsibility of their own learning	Depend upon others



12 Major Areas of Individual Differences

1. Physical Differences
2. Differences in Intelligence
4. Differences in Interests
5. Differences in Attitudes
6. Differences in Aptitude
7. Differences in Achievement

8. Emotional Differences
9. Socio-economic Differences
10. Ethno-Cultural Differences
11. Differences on account of gender
12. Personality differences

Major Causes of Individual Differences:

1. Heredity
2. Environment
3. Influence of caste, ethnicity and nation
4. Sex differences
5. Age and intelligence
6. Temperament and emotional quotient
7. Economic condition and education

Educational Implications of Individual Differences

- **Visual (Spatial):** Learning primarily through the sense of sight, utilizing pictures, visuals, images, and spatial understanding to comprehend and retain information.
- **Aural (Auditory-Musical):** Learning primarily through the sense of hearing, engaging with sound and music to absorb and process information.

- **Verbal (Linguistic):** Learning primarily through words, both spoken and written, utilizing language to understand and convey ideas.
- **Physical (Kinesthetic):** Learning through physical interaction and movement, relying on the sense of touch and bodily actions to grasp concepts.
- **Logical (Mathematical):** Learning through logical reasoning, analysis, and systematizing information to make connections and draw conclusions.
- **Social (Interpersonal):** Learning through interaction and communication with others, engaging in collaborative activities and discussions.
- **Solitary (Intrapersonal):** Learning independently, in solitude, through self-study and reflection, often relying on introspection and personal exploration.

Measures to Address Individual Differences in the Classroom

1. Aims and objectives of education should be linked with individual differences as regards different abilities and traits of learners.
2. **Curriculum** should be so designed flexibly as to cater to the varied interests, abilities and needs of different students.
3. Different methods of teaching such as role-playing method, project method, Montessori method, storytelling methods should be adopted considering individual difference related to interests,

needs, etc. Various methods such as role playing method, project method, Montessori method, storytelling methods.

4. The choice of teaching aids should be such as to attract the range of abilities, interests and needs of the different children.

5. Limited size of the class: Compulsory Education (RTE) Act, 2009 lays down the Pupil Teacher Ratio (PTR) at 30:1 for the primary level and 35:1 for upper primary.

6. Proper division of the class: taking into account individual differences in age, interests and physical, emotional and social qualities rather than consider only the mental or chronological age of children.

7. **Individualized learning:** Should be promoted by plans.

(i) Dalton Plan regards school as 'children house' and allows learners all freedom, co-operation and time they need to learn. There is no time table, no classroom and no interruption as learners get absorbed after choosing the subjects that suit their individual interests. They are allowed to work and learn at their own pace and in accordance with their individual ability.

(ii) Morrison Plan follows directed guidance and stresses unit assignment. To suit individual needs and interests

(iii) Winnetka Plan first assesses the knowledge level of an individual through an examination and on the basis of that, plans a customised learning unit for them.

(iv) Contract Plan has the subjects of study determined like the Dalton method; and the pupil's progress is measured through tests like the Winnetka method.

(v) Project based learning technique The teacher only facilitates the project and provides scaffolding (demonstrates a model of the process/ work/solution and steps back, offering support only when needed).

3. Factors Affecting Teaching

FACTORS AFFECTING TEACHING

The various factors that come into play whenever a teaching learning process is underway are related to the following:

1. Teacher
2. Learner
3. Support material
4. Teacher- student relationship
5. Instructional facilities
6. Teacher- administration relationship
7. Learning environment/Classroom environment
8. Institution and administrative policies

1. Teacher

- i. Educational Qualification and Subject Knowledge
- ii. Awareness of learner factors
- iii. Experience of the teacher
- iv. Parental expectation
- v. Teaching Skills:
- vi. Methods of teaching

- vii. Friendliness and Approachability
- viii. Personality and behaviour:
- ix. Level of Adjustment and Mental health of the teacher:
- x. Discipline
- xi. Economic factor

2. Learner

- i. Learner's physical and mental health:
- ii. Learner's basic potential:
- iii. The level of aspiration and motivation for achievement:
- iv. Goals in life:
- v. Readiness and will power:

3. Support material/learning resources

material is an umbrella term that includes audios, videos, online tutorials, open journals, online tests and all kinds of teaching aids. The teacher alone cannot suffice for all requirements of an effective teaching and learning process. Inclusion of support material increases the effectiveness of the teaching- learning process and makes achievement of learning outcomes easier.

4. Teacher-student relationship

Teacher-student relationship is the cornerstone of a student's social maturation process. Cultivating a good rapport with a non-parental adult authority paves the way to self-discovery, adjusting in the social/cultural environment and developing

their emotional intelligence. Positive relationships with teachers become game changers for kids. Even students with learning and behavior disorders who may be initially stressed out settle down well, physically as well as emotionally, and perform at their very best when the teacher by connecting to them personally creates a positive, safe and structured environment to learn.

5. Instructional facilities

Instructional facilities include all that is required to create a learning environment. Institutions of learning provide classrooms, laboratories, audio-visual presentation rooms, seminar rooms, auditoriums, libraries and other spaces to be used primarily for the purpose of delivering formal instruction to students. These facilities enhance the teaching-learning experience and they must be available in adequate amount to cater to every single student so that equality of opportunity is assured.

6. Teacher-administration

relationship If the relationship between the teacher and the administration/ management of the school is not cordial and professional, it may introduce several hindering factors into the teaching-learning process. It may weigh on the teacher's state of mind which will invariably translate to their body language and unsettle the learners too. To achieve the goals of education and ensure an optimal functioning of the

teaching-learning processes, it is essential that there is no adversarial relationship between teachers and administrators.

7. Learning environment/Classroom environment

Learning environment refers to the diverse situations, physical locations, contexts, and cultures in which teaching learning processes are carried out. Apart from limited and traditional classrooms with rows of desks and a chalkboard or smart board, learning can happen in a wide variety of settings in off-campus outdoor locations. Learning environment encompasses the culture, ethos and characteristics of a traditional school or class in the manner the teacher and the taught interact with and treat one another as well as the ways in which teachers may organize an educational setting to facilitate learning.

8. Institution and Administrative policies

The infrastructure of the institution and the policies framed by their governing bodies, may also affect teaching. If the school lacks required infrastructure or school policies control or restrict the classroom activities, it will invariably constrain the teacher from proper deliverance of the lessons. On the other hand, giving autonomy to the teacher and allowing them the freedom and flexibility to choose teaching methods, classroom activities, etc., will enhance teaching practices as well as learning experiences.

4. Methods of Teaching in Institutions of Higher Learning

Teaching methods are divided into two classes as teacher centred and learners centred. Teaching, as conventionally understood by a traditional teacher is the act of disseminating information to another individual or a group of individuals in the classroom. In this type, the teaching is focussed on narration by the teacher and on the part of learners' listening, retention and recall. The teaching environment is very much formalized and the teacher occupies central position in the classroom. Here the learners acquire knowledge or information with practically an opportunity to develop understanding, application and skills. They know the information but they cannot correlate this to the daily life situations. This method also fails to draw the total attention of the learner towards learner's abilities. Hence there arose the need for new methods, strategies and techniques that are suitably and effectively used in modern days.

TEACHING STRATEGIES

Teaching strategies can be classified under the following two heads:

a. Autocratic style:

It involves the following strategies:

- Lecture
- Lesson demonstration

- Tutorials
- Programmed instruction

b. Permissive style:

It includes the following strategies

- Question-Answer
- Heuristics
- Projects
- Review
- Group discussion
- Role-playing
- Assignment
- Discovery
- Computer assisted instruction
- Brain storming
- Independent study

Different Methods of Teaching

1. Discussion/Debates
2. Cooperative Teaching
3. Collaborative Work
4. Problem-Based Learning (PBL)
5. Heuristic Method (Problem solving)
6. Case Study Method

7. Demonstration Method
8. Inductive Method
9. Deductive Method
10. Analytical Method
11. Synthetic Method
12. Verbal or Oral Method
13. Written Method
14. Laboratory Method
15. Practical Methods
16. Explanatory Method
17. Activity-oriented Method
18. Designing and Presenting a Project
19. E-Learning

Concept	Teacher Centered	Learner Centered
Knowledge	Transmitted by instructor	Constructed by students
Student participation	Passive	Active
Role of professor	Leader/authority	Facilitator/learning partner
Role of Assessment	Few tests/assignments—mainly for grading	Many tests/assignments— for ongoing feedback
Emphasis	Learning correct answers	Developing deeper understanding
Academic culture	Individualistic and competitive	Collaborative and supportive

Student participation	Passive	Active
Role of professor	Leader/authority	Facilitator/learning partner
Role of Assessment	Few tests/assignments—mainly for grading	Many tests/assignments— for ongoing feedback
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Academic culture	Individualistic and competitive	Collaborative and supportive

OFF LINE VS. ONLINE METHODS (SWAYAM, SWAYAMPRAKASHA, MOOCs ETC.)

In offline teaching and learning, students are able to interact with their teachers and peers face-to-face. Online teaching and learning is the newest and most popular form of distance education today. Online learning is education that takes place over the Internet. It is often referred to as “e-learning” among other terms.

Advantages of Offline Methods of Teaching

Collaborative learning	<ul style="list-style-type: none"> • Basically, the classroom environment is important to encourage and motivate collaborative learning. • Collaborative learning increases student’s self-awareness about how students learn and enables them to learn more easily and effectively, transforming them into keen learners inside and beyond the classroom.
Critical thinking	<ul style="list-style-type: none"> • Classroom teaching enhances students' critical thinking skills.

	<ul style="list-style-type: none">• Classroom studying provides an opportunity for students to engage in live discussions where they can better utilise their critical thinking skills to voice opinions or involve in an argument.
Rapport with teachers and making friends	<ul style="list-style-type: none">• When students are in a classroom, they learn social interactions with peers, make friends, and also establish rapport with teachers. It is vital for children to develop socially along with their academic education.
Conflict resolving and building team spirit	<ul style="list-style-type: none">• Classroom teaching inculcates conflict resolving skills, presentation skills when it comes to presenting their ideas confidently in front of peers, develops team spirit, and teaches them to get along with those from different cultural backgrounds.• These kinds of experiences benefit in moulding students' communication and listening skills and it helps them in growing and maturing emotionally.
Importance of a teacher	<ul style="list-style-type: none">• The presence of a teacher physically in a classroom keeps the students attentive and inspired throughout the lecture, and additionally also initiates participation in interesting activities. This enables students to retain more from what they have learned during a session.• In this method, teachers can also modify their teaching style based on types of learners in their classroom i.e. classroom activities can help visual learners and interactions can help auditory learners amongst others.• Through this process, teachers can get an idea of whether the students are following what has been taught or they require further explanation.

	<ul style="list-style-type: none"> • Furthermore, students can also clarify their doubts immediately after the chapter is over or a topic is over
Skill development	<ul style="list-style-type: none"> • Classroom teaching teaches students how to develop organizational skills, beginning with the basics, such as arriving at school on time. • In a live classroom, students are held accountable for being prepared to do school work, which includes doing their homework the night before, being ready for a sort of quiz or competition, submitting assignments in time or before their due date and prepare for classroom discussion or any group discussion. • All these help students in organizing themselves and their time, prioritise their homework, assignments, and playtime.

Advantages of Online Methods of Teaching

There are many benefits of online learning like flexibility of time; plenty of choices; cost benefits; comfortable environment to study; career advancement study even while working, gaining skills that are transferable; no necessity of commuting; and learning at home. Online method offers advantages to teachers as well as learners.

Develop self-discipline	<ul style="list-style-type: none"> • It helps learners to develop self-discipline and also join study groups from different places to understand perspectives
Convenience and flexibility	<ul style="list-style-type: none"> • Teaching online offers instructors more options for engaging in instructional activities. • Online faculties have more flexibility in teaching during non-traditional class times. • They can also teach anywhere they have access to the Internet.

	<ul style="list-style-type: none"> • Some examples include teaching from home or while traveling to a conference.
<p>Getting to know students better</p>	<ul style="list-style-type: none"> • The online environment provides a more comfortable venue for inhibited students to participate in course activities and discussions. • This increases the pool of participants, the likelihood of varied perspectives, and the richness of course discussion. • At the same time, the online environment attracts students who are self-motivated and more likely to initiate conversations, pose questions, and collaborate with their peers and instructor. • And, since every student is expected to post a response to the discussion board, the instructor gets a strong sense of his/her students' understanding of course material.
<p>Greater engagement and learning</p>	<ul style="list-style-type: none"> • In online courses, students' engagement and learning increases. • Since all students are required to participate in discussion threads, every student needs to work through different problems and generate ideas and solutions. • Students who typically don't participate in the face-to-face course are more likely to post to a discussion and interact with their peers in the learning process. • Since students have more time to reflect and respond to the instructor's question, instructors get more in-depth, researched responses from students.
<p>Efficiency</p>	<ul style="list-style-type: none"> • Instructors find increased efficiency in some rote tasks. Some tools in online teaching automate processes and save instructors' time.

Enriching experience	<ul style="list-style-type: none"> • By teaching online, instructors reach a broader student population that would not have been otherwise possible. • Interacting with students from different parts of the country or the world not only enhances the students' learning experience but also the instructor's.
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Key e-learning initiatives run by MHRD

(i) SWAYAM	<ul style="list-style-type: none"> • The 'Study Webs of Active Learning for Young Aspiring Minds' (SWAYAM) an integrated platform for online courses, using Information and Communication Technology (ICT) and covering school (9th to 12th) to Post Graduate Level. • At present, about 1000+ MOOCs Courses are listed on SWAYAM, wherein about 30 Lakhs students have enrolled to these courses. • It also offers online courses for students, teachers and teacher educators
(ii) SWAYAM Prabha	<ul style="list-style-type: none"> • SWAYAM Prabha is an initiative 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.
(iii) National Digital Library (NDL)	<ul style="list-style-type: none"> • The National Digital Library of India (NDL) is a project to develop a framework of virtual repository of learning resources with a single-window search facility. • There are more than 153 Lakhs digital books available through the NDL

<p>(iv) E-pathshala</p>	<ul style="list-style-type: none"> • E-books of the resources developed by National Council of Educational Research and Training (NCERT), State Council of Educational Research and Training (SCERT) / State Institutes of Education (SIEs), State boards etc. • SIEs in multiple languages and uploaded on e-pathshala website and disseminated through mobile app (android, iOS and Windows). • E-pathshala has been listed/made available on the UMANG App of Govt. of India, which was launched by Hon'ble Prime Minister of India on 23 November, 2017 during GCCS-2017.
<p>(v) National Repository of Open Educational Resources (NROER)</p>	<ul style="list-style-type: none"> • To make digital resources available for teachers and students as free and open source material. • To enable the participation of the community in development and sharing of digital resources. • To facilitate the adoption and creation of digital resources in different Indian languages.
<p>(vi) e-Shodh Sindhu</p>	<ul style="list-style-type: none"> • Consortia for Higher Education e-resources is to provide access to quality electronic resources including full-text, bibliographic and factual databases to academic institutions at a lower rates of subscription

5. Teaching Support System

TEACHING SUPPORT SYSTEM

Teaching Support system is a set of tools that will improve student achievement by building capacity in teachers.

I. TRADITIONAL TEACHING SUPPORT SYSTEM

In the traditional way of teaching and learning, higher education institutions designed a program based on the text book and lecture which is framed with time and place for students. In this model, the main purpose is to satisfy requirement for mastery of a body of knowledge for a life long career. School teaching is supported by textbook and chalk and blackboard in traditional method.

Merits and Demerits of Traditional Teaching Methods

Merits	Demerits
Lecture remains one of the most effective teaching methods when the group of learners is exceptionally huge.	There is less involvement of learners.
Traditional teaching methods are easy to use given any group of learners.	There is less emphasis on the understanding of concepts and/or logical thinking.
They are economic in terms of money as well as time.	Weak learners suffer the most as they don't feel motivated.
The teacher has a lot of authority over how the content is delivered and the amount of creativity involved.	Evaluation of learners based on traditional teaching methods can sometimes be faulty

There is less incentive among teachers for reflection.

Traditional Methods of Teaching in a Nutshell

- Teacher-centric classrooms
- Teachers in the mode of knowledge dispensers rather than facilitators
- Chalk and talk methods
- Regimented classrooms
- Lack of collaboration and group learning
- More emphasis on examinations and results rather than understanding of concepts
- Improper alignment between objectives, activities and assessments

II. MODERN TEACHING SUPPORT SYSTEM

The changes in modern teaching methods made necessary by technological, economic, and cultural forces in the early 21st century have fundamentally altered the very foundation of traditional educational models. Education reforms mean that learning is taught from a completely different angle.

Merits and Demerits of Modern Teaching Methods

Merits	Demerits
<ul style="list-style-type: none">• They are learner-centred techniques.	<ul style="list-style-type: none">• Since teaching becomes more dynamic, teachers need to learn and relearn new skills.

<ul style="list-style-type: none"> • More content can be covered in lesser time. 	<ul style="list-style-type: none"> • There is too much reliance on technology which reduces the authority of teachers.
<ul style="list-style-type: none"> • Modern teaching methods are fun and interactive way of learning. 	<ul style="list-style-type: none"> • It requires huge investment of money, time and effort.
<ul style="list-style-type: none"> • There is more scope for using audio-video teaching aids such as documentaries, YouTube videos, online lectures, MOOCs, educational games, educational mobile applications etc. 	<ul style="list-style-type: none"> • Some modern teaching methods are exclusionary in nature.
<ul style="list-style-type: none"> • Modern teaching methods also help in self-evaluation 	<ul style="list-style-type: none"> • The teacher-student relationship suffers as there is less time to develop bonding with the students.
<ul style="list-style-type: none"> • It is not a mechanical way of teaching as students, as well as teachers, participate in knowledge construction. 	

Modern methods education in a nutshell

- Technology-driven classrooms
- Continuous comprehensive evaluation
- Cross-curricular connections
- Inquiry-based learning
- Emphasis on understanding of concepts
- Linking curriculum with life

- Emphasis on skill building, life skills and values
- Smart interactive boards
- BYOD – Bring your own device
- Collaborative learning
- Differential learning
- Activity-based learning and learning labs
- Interdisciplinary learning
- Integrative and social responsibility and civic engagement
- Digitisation in teaching, learning assessment and feedback
- Collaborative learning
- Differentiated instruction
- Flipped classroom
- Problem-based learning

III. ICT BASED TEACHING SUPPORT SYSTEM

Computer technology has become a service provider, teaching partner, and learning tool; and Indian universities are now using Information Communication Technologies (ICT) for various purposes. This has created a new scenario of modes of education which can be classified as follows :

1. Formal Education	Classroom / campus-based education imparted by traditional universities.
2. Non-formal Open and Distance Education:	Offered by single mode open universities.

3. Mixed Mode Education	Offered by Distance Education Institutions (DEI) of traditional universities by using both formal and non-formal components of the two modes.
4. ICT Based Convergent Mode	Uses Web Based Education (WBE), Computer Based Education, Center/ Classroom Based Education. Some universities are using ICT and Internet extensively in education to supplement the print based / classroom based mode in formal and/ or non-formal education.
5. Entirely WBE - E-Education	Uses Internet and WBE extensively so that teaching and learning is almost distributed.

Nature and Characteristics of ICT Based Teaching Support System

- Information and Communication Technology can lead to improved student learning and better teaching methods. with often larger classes, more diverse students, demands from government and employers who want more accountability.
- Conventionally, materials to support teaching learning were of two types; visuals in the form of charts, posters, photographs and models or actual objects.
- With the advent of projection devices like the overhead projectors and audio-visual devices like radio, television, tape recorders, the range of support materials grew.

- With the advent of computers with superior graphic capabilities and adequate computing power to play back audio and video, a diverse set of devices have become integrated.
- A large number of audiovisual support in the form of graphics, animation, models, drawings, photographs, audio and video have been developed.
- Simultaneously, internet enables the development of large networks, which can cater to a diverse set of needs of the school system.

Mega Paradigm Shifts in Education

There are mainly two mega paradigm shifts in education.

- The first is from traditional university to open and distance education (ODE), and the second is from ODE to E-Education.
- Both the traditional and ODE universities are essentially based on industrial models of education – offering mass education.

Teaching Aids

Teaching aids may be classified as follows:

Visual Aids: The aids which use sense of vision are called Visual aids; e.g., actual objects, models, pictures, charts, maps, flash cards, flannel board, bulletin board, chalkboard, overhead projector, slides etc. Out of these black board and chalk are the commonest ones.

Audio Aids: The aids that involve the sense of hearing are called Audio aids; e.g., radio, tape recorder, gramophone, etc.

Audio-Visual Aids: The aids which involve the sense of vision as well as hearing are called Audio- Visual aids; e.g., television, film projector, film strips, etc.

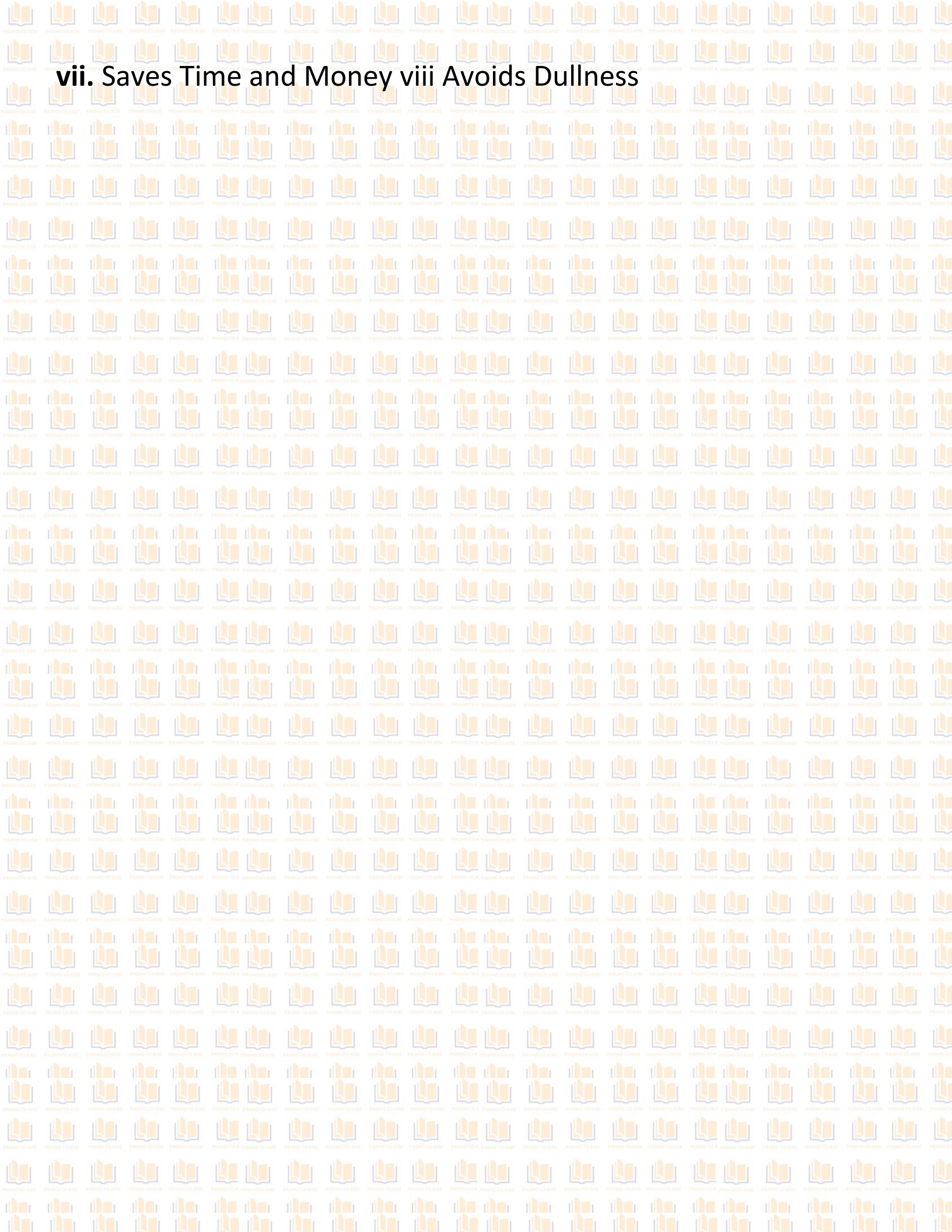
Projected and Non-projected Aids

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	White board	Mock ups	Recordings	Experimentation
Overhead	Posters	Bulletin board	Objects and specimens	Digital Audio Player	Dramatics
Epidiascope	Pictures and photographs	Flannel board	Puppets	Television	Teaching machines
Video projectors	Graphs	Magnetic board		Telephone and mobile	Programmed instructions
Film strips	Maps Diagrams	Peg board			

Importance of Teaching Aids

- i. Motivation:** Teaching aids motivate the students so that they can learn better.
- ii. Clarification:** Through teaching aids, the teacher clarifies the subject matter more easily.
- iii. Discouragement of Cramming:** Teaching aids can facilitate the proper understanding to the students which discourage the act of cramming.
- iv. Increase the Vocabulary:** Teaching aids helps to increase the vocabulary of the students more effectively.
- v. Direct Experience:** Teaching aids provide direct experience to the students
- vi. Classroom Live and Active:** Teaching aids make the classroom live and active.

vii. Saves Time and Money viii Avoids Dullness



6. Evaluation Systems

ELEMENTS OF EVALUATION

- Evaluation is a systematic process of collecting, analysing and interpreting evidences of students' progress and achievement both in cognitive and non-cognitive areas of learning for the purpose of taking a variety of decisions.
- Evaluation, thus, involves gathering and processing of information and decision-making.
- Evaluation is a continuous process not a periodic exercise.
- It helps teachers and learners to improve teaching and learning.
- It helps in forming the values of judgement, educational status, or achievement of students.
- Evaluation in one form or the other is inevitable in teachinglearning, as in all fields of activity of education judgements need to be made. Hence, it is desirable that teachers must acquire knowledge and understanding about the various aspects of evaluation and its application in classrooms.
- Teaching for successful learning cannot occur without high quality evaluation.
- Evaluation, needs to be integrated with the process of teaching and learning.
- The greater the integration the better the outcomes of learning. Hence, evaluation has to be so designed that it can be used as a powerful means of influencing the quality of what teachers teach and what students learn.

- Evaluation must provide constant feedback regarding the effectiveness of course — contents, classroom processes and the growth of individual learners besides the appropriateness of the evaluation procedures.
- It must, however, be flexible enough to the extent that it can be experimented with and adapted according to the specific situations and needs of the learner groups.

Goals of Evaluation

- To clarify objectives of education
- To provide guidance
- To provide remedial work
- To diagnose the problems of students
- To identify students needs and levels
- To improve the skills of learning in students
- To identify students aspects of development
- To bring improvements in instructional strategies
- To assess the educational value and utility of the educational programme
- To provide useful feedback
- To influence decision making or policy formulation by provision of empirically driven feedback
- To bring improvement in teaching-learning process
- To assess personality of the students
- To analyse teacher student behaviour

- To analyse effectiveness of Audio Visual aids

CHARACTERISTICS OF GOOD EVALUATION

Evaluation should, ideally, be valid, reliable, practicable, fair and useful

Validity	<ul style="list-style-type: none"> • A valid evaluation is one which actually tests what is sets out to test i.e., one which actually measures the behaviour described by the objective(s), under scrutiny.
Reliability	<p>The reliability is a measure of the consistency with which the question, test or examination produces the same result under different but comparable conditions.</p> <ul style="list-style-type: none"> • A reliable evaluation item gives reproducible scores with similar populations of students.
Practicability	<ul style="list-style-type: none"> • Evaluation procedures should be realistic, practical and efficient in terms of their cost, time taken and ease of application. • An ideal procedure of evaluation, must be able to be put into practice
Fairness	<ul style="list-style-type: none"> • Evaluation must be fair to all students. • This can be possible by accurate reflecting of range of expected behaviours as desired by the course objectives. • To keep fairness in evaluation, it is also desired that students should know exactly how they are to be evaluated.
Usefulness	<ul style="list-style-type: none"> • Evaluation should also be useful for students.

- Feedback from evaluation must be made available to the students and help them to identify their current strengths and weaknesses.
- By knowing their strength and weakness, students can think of further improvement.

EVALUATION IN CHOICE BASED CREDIT SYSTEM (CBCS) IN HIGHER EDUCATION

Advantages of CBCS

- 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, intradisciplinary 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 OF CBCS

- Difficult to estimate the exact marks

- Workload of teachers may fluctuate

Formative Evaluation

Formative assessment is carried out during a course of instruction for providing continuous feedback to both the teachers and the learners for taking decisions regarding appropriate modifications in the transactional procedures and learning activities.

Main Features of Formative Evaluation

- It is diagnostic and remedial
- makes the provision for effective feedback
- provides the platform for the active involvement of students in their own learning.
- enables teachers to adjust teaching to take account of the results of assessment
- recognizes the profound influence assessment has on the motivation and self-esteem of students, both of which are crucial influences on learning
- recognizes the need for students to be able to assess themselves and understand how to improve
- builds on students' prior knowledge and experience in designing what is taught.
- incorporates varied learning styles into deciding how and what to teach.
- encourages students to understand the criteria that will be used to judge their work
- offers an opportunity to students to improve their work

- after feedback, helps students to support their peers, and expect to be supported by them

SUMMATIVE EVALUATION

Summative evaluation is conducted at the end of the academic year after completion of the entire curriculum. The outcomes of the learners to evaluate as well as the course.

- It measures or 'sums-up' how much a student has learned from the course.
- It is usually a graded test, i.e., it is marked according to a scale or set of grades.
- Assessment that is predominantly of summative nature will not by itself be able to yield a valid measure of the growth and development of the child.
- It, at best, certifies the level of achievement only at a given point of time.
- The paper pencil tests are basically a one-time mode of assessment and to exclusively rely on it to decide about the development of a learner is not only unfair but also unscientific.
- Over emphasis on examination marks focusing on only scholastic aspects makes children assume that assessment is different from learning, resulting in the 'learn and forget' syndrome.
- Besides encouraging unhealthy competition, the overemphasis on Summative Assessment system also produces enormous stress and anxiety among the learners.
- It is this that has led to the emergence of the concept of Continuous and Comprehensive School-Based Evaluation.

COMPUTER BASED TESTING (CBT)

- A Computer-Based Assessment, also known as ComputerBased Testing, e-exam, computerized testing and computeradministered testing, is a method of administering tests in which the responses are electronically recorded, assessed, or both.
- As the name implies, Computer-Based Assessment makes use of a computer or an equivalent electronic device (i.e. handheld computer).
- Computer-Based Assessment enables educators and trainers to author, schedule, deliver, and report on surveys, quizzes, tests and exams.
- Computer-Based Testing may be a standalone system or a part of a virtual learning environment, possibly accessed via the World Wide Web.

Factors Contributing in CBT

Comparability with a paper and pencil test

- It is possible to computerize virtually any traditional test.
- It is far easier to present on the computer screen verbal and numerical items than visual items where there is always the possibility that the screen image will be different from the printed test, even with modern graphics and light sensitive pens.
- Nevertheless, no matter how identical the two tests appear to be it is essential that the reliability, validity and standardization of the computer version be checked.
- Furthermore, it is essential to show that the correlation between the two versions is high.

Presentation of results to subjects

- Immediately the test is finished the computer can present the results to the subject, either on screen or as a printed document. Incidentally it should be pointed out that some of these facilities are possible with paper and-pencil tests which are computer scored. Here the test is administered to subjects in the usual way, but the responses are punched into the computer.
- This allows the printed report for the subjects and comparisons with norm groups to be produced. It also allows a database to be built up for the development of special norms. What of course is not possible is the presentation of items appropriate to the subject, as determined by the subject's responses.
- A number of tests have however been developed specifically for computerized use, and some of these take advantage of the graphic possibilities of the computer.
- As we can see their certain advantages to computeradministered and computer-scored tests – especially the rapid calculation of a subject's results and the immediate presentation of her or his scores in terms of normative groups or other criteria. In addition there are advantages in the ability to present subsets of items.
- There are further advantages including the ability to store all results and develop new or local norms, and the opportunity they allow the tester to examine the statistical quantities of the test, right down to the item level.
- Finally, types of item can be used which are impossible in the traditional test. All this is good and provided that the ethical problems (of presenting results to subjects without their being able

to discuss their implications and their own reactions to them) are dealt with, computer-administered tests can be useful.

Advantages and Disadvantages of CBT

Computer-based test also can be supervised or nonsupervised, and can be used for diagnostic, formative or summative assessment. This can take place locally or at a distance, using intranets or the Internet. But there are both advantages and disadvantages with using on-line or computer based assessment.

	Advantages	Disadvantages
Administrative	<ul style="list-style-type: none">• Computerized marking is not prone to human error.• Saves staff time in terms of supervising and marking (including double marking) assessments.• Reduces of printing costs, particularly when tests are updated or changed	<ul style="list-style-type: none">• Implementing a CBT can be costly and time-consuming.• Staffs who design and invigilate CBT need training in assessment principles and design, IT skills and examination management.• A high level of collaboration between all those involved in designing and implementing CBT is required.• Some systems cannot implement anonymous marking.

		<ul style="list-style-type: none"> • Hardware and software used to deliver CBT needs to be robust in order to avoid failure at crucial times such as examinations.
Pedagogical	<ul style="list-style-type: none"> • Tutors can incorporate hints into test questions. • Tutors can monitor the progress of students through frequent use of assessment. • Students can monitor their own progress and revise and rehearse at their own pace. • Detailed and specific feedback can be given to students during and immediately after a test. • Tutors can assign different learning activities to students based on their test results. • Can provide tutors with feedback for evaluation of modules/courses/programs 	<ul style="list-style-type: none"> • Unsupervised CBT sessions present a risk of plagiarism (it can be difficult to authenticate the identity of students). • Students need to have sufficient IT skills and experience of the requirement of CBT. • Staffs have a tendency to just use MCQS which can be tedious and demotivating for students, and it has been argued that MCQS focus on testing superficial levels of students learning
Other	<ul style="list-style-type: none"> • Timely feedback; the teacher can provide feedback. 	<ul style="list-style-type: none"> • A high level of organization is required across all parties involved in assessment

- Automatic feedback; some forms of on-line assessment answers (i.e. multiple choices).
- Monitoring and tracking of learners' results behavior.
- Choice of assessment modes, such as multimedia, interactivity, etc.
- Keeping records of results that can be stored centrally and assessed by interested parties, such as students and staff.
- Increasing ease with which data can be used as corrected assignment corrected and stored electronically can be analyzed easier and the data can be used in spreadsheets and other statistical packages.

(academics, support, staff, computer services and administrators).

- Assessors and invigilators need training in assessment design, IT skills and examination management.
- Technical malfunctions; computer equipment may not always be available or in working order.