TAMIL NADU TEACHERS EDUCATION UNIVERSITY

Chennai-600 097

Course Material for B.Ed (First Year)

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Course: 3 Learning and Teaching

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UNIT- 1: NATURE OF LEARNING

Objectives:

1. Understand the nature of learning and basic principles
2. Comprehend the principles and techniques of active learning and their implications
3. Learns to differentiate rote learning and meaningful learning
4. Understand the self learning

INTRODUCTION

Learning is acquiring knowledge or any skill that enriches our life. Learning is change in behavior. The Elements of learning will support learning to be lively and interesting. The information given below will supplement the basic principles of learning, rote learning, meaningful learning, active learning and self- learning.

LEARNING: MEANING

1. The acquisition of knowledge or skills through study, experience or being taught
2. Learning is the act of acquiring new or modifying and reinforcing knowledge through study.
3. Knowledge acquired by systematic study in any field of scholarly application.
4. The modification of behavior through practice, training and experience
5. Learning itself cannot be measured, but its results can be.
6. Learning is an important form of personal adaptation.
7. The activity of gaining knowledge by studying, practicing and being taught
10. Knowledge or skill gained from learning

LEARNING: DEFINITION

1. Learning is acquiring any skill that enriches your life. It doesn't have to be taught out of a book or by a teacher, rather you may acquire it through your own exploration, through sharing or by instruction from anyone, not necessarily a "teacher".

- ANGELA SINGLE

2. Learning is a relatively permanent change in the behavior or attitude of a person over time.

- CHRISTING CHIN SANG

3. The acquisition of new responses to various stimuli.

- ERIC BLACKBURN

4. Learning is accumulating of experiences and the consequential growth and new understanding of the world around us.

- KRISTI MCGRATH

5. Learning is a change in behavior.

-REBECCA PANGBORN

6. Learning is a process. It is not static. A person never stops acquiring new information. It keeps a person's mind active and aware but also conscious to the world around them.

- VERONICA IACOBAZZO

7. Learning is a lifelong process of gaining and using information presented to us. The ability to learn is endless, as long as the desire is present. Learning is only successful when the information gained is used and understood.

- THOMAS CORRELL

8. Learning is the accruing of knowledge that collectively drives behavior development and external interaction.

- ABBY SHUBERT

9. A change that occurs in response to thinking or other sensual stimuli.

- SCOTT MILLER

10. Learning is a relatively permanent change in behavior that results from experience

-STEPHEN B.KLEIN

Elements of Learning

The elements of learning are

1. Face-to-face promotive interaction—refers to students talking to each other in order to share insights and ideas.
2. Individual responsibility—refers to holding students accountable for themselves to prevent "freeloading" in a learning group.
3. Collaborative skills—include skills necessary for effective group functioning, such as leadership, teambuilding, and conflict resolution.
4. Group processing—refers to how well the group is functioning aside from the academic products or performances.

5. Positive interdependence—the perception among members of the group that "we sink or swim together."
6. **Ability:** The students' native ability dictates the prospects of success in any purposeful activity. It determines their capacity to understand and assimilate information for their own use and application.
7. **Aptitude:** It refers to the students' innate talent or gift. It indicates a natural capacity to learn certain skills.
8. **Interests:** Learners vary in activities that are undertaken due to a strong appeal or attraction. Lessons that give the learners the chance to express themselves will be more meaningful and easily absorbed
9. **Family & Cultural background:** Students who come from different socio economic background manifest a wide range of behavior due to difference in upbringing practices.
10. **Attitudes:** Attitude refers to an individual perspective and disposition. Some positive attitudes are curiosity, responsibility, creativity & persistence.
11. **The learner or the pupil is involved**: Unless the pupil is prepared or enabled to learn, learning cannot take place. Learning is a very personal experience. We cannot "give" this experience to a child**.**
12. **The Experience:**"T he experience or the situation provides that experience which causes learning". These situations are provided by the school in the form of subjects, activities or atmosphere and the teacher organizes them for the pupils.
13. **The teacher is the key person:**In the learning process, the teacher is the key person. He is to organize learning experiences for children and the child would learn by reacting to such experiences. The teacher cannot *make* a childlearn. He can only facilitate the learning process by properly organizing experiences and creating a conductive climate for learning, e.g., arranging facilities, providing materials and gadgets, managing social relationships and activities which promise rich, worthwhile productive living for children.
14. **The climate**: The climate or the environment is an important element in learning in school. It can stimulate or retard learning.

BASIC PRINCIPLES OF LEARNING

1. Learning is growth

Learning is actually a form of growth. It is something that is natural and inevitable. It is this growth factor in learning that gives it its drive and push. Through his daily activities, the child grows both mentally and physically. Great educators are one in their emphasis on this organic characteristic of learning. Pestalozzi symbolized his meaning by a tree, Froebel by a garden, Marietta John by a pine branch. Thus, learning is growth through experience.

2. Learning is adjustment

Learning is basic to our attempts to adjust ourselves to our environment. Learning helps the individual to adjust himself adequately to the new situation. In the words of Gates and others, "Learning may be thought of as the progressive change in behavior which is associated on the one hand with successive presentations of a situation, and, on the other, with repeated efforts of the individual to react to it effectively." School learning can only take place if there is a definite adjustment toward the goal of learning.

3. Learning is organizing experience

Learning is not just an addition of new experience nor is old experience summed up, rather it is a synthesis of the old and the new experiences which result in a completely new organization of pattern of experiences. This organization of experiences involves the elimination of many habits unnecessary in the final consummation of the act. Facts are arranged and rearranged in proper relation and then appropriate learning takes place.

4. Learning is purposeful

All true learning is purpose-goal-directed. When the learner finds that his desires are fulfilled, learning is effective. The studies on forgetting show that irrelevant material is more rapidly forgotten than relevant material.

5. Learning is intelligent

Meaningless repetition does not produce permanent learning. Learning takes place when an insight is gained, and the processes are understood. Only understanding and intelligent repetitions can ensure lasting results in learning.

6. Learning is action

Learning is the natural outcome of the individual's attempts to meet his basic and normal needs. All genuine learning is self – learning. So the individual must become an active participant in the learning process .Only participation and doing effect learning. All the progressive methods of teaching, the Dalton plan, the Project method, the Montessori Method, the Kindergarten, the Basic Education lay stress on this characteristic of learning.

7. Learning is both individual and social

Learning is more than an individual activity; it is a social activity too. No one can deny that the social agencies like the family, the community, the gang, the films, the religious places, and other institutions have a tremendous influence on the child and are always affecting his behavior pattern. Individual mind is affected by the group mind consciously as well as unconsciously.

8. Learning is unenforceable

Human learning is a matter of human action; it cannot be enforced upon the human beings. Most pupils are, generally, able to comply with normal expectations. But when any child is not, the teacher must wait for that child to be ready for learning or he will destroy the very work which is being attempted. It is a characteristic of learning that it is unenforceable.

9. Learning is a product of the environment

Learning cannot take place in vacuum-it can only take place in relation to environment. The environment should be healthy and rich in educative possibilities. It must be conductive to learning.

10. True learning affects the conduct of the learner

True learning produces changes in the conduct (behavior pattern) of the leaner. Every experience produces a change in the mental structure of the learner which in turn affects the conduct of the learner. This, in short, is the goal of learning.

11. Learning is whole

The human organism functions as a whole. Wholesomeness, as distinct from splitting, is a central principle of life

12. Learning frequently depends upon insight

Insight has sometimes been described as the "flash of understanding". It occurs when a situation, originally without meaning, suddenly becomes charged with meaning, or when the solution to a problem or the way to a goal, becomes apparent. The ability to gain insight depends upon interest, previous knowledge and intelligence. In the case of a dull child, it will be necessary for the teacher to give more than usual assistance to enable him to grasp the meaning underlying a situation.

LEARNING AND THEIR IMPLICATIONS

Haynes lists the activities fit for students of different learning style. For auditory learners, these activities include interviewing, debating, participating on a panel, giving oral reports and participating in oral discussions of written material. For visual learners, these activities are suggested: computer graphic, maps, graphs, charts, cartoons, posters, diagrams text with a lot of pictures. For tactile learners, some favorite activities include drawing, playing board games, and making models. For kinesthetic learners, playing games that involve the whole body, movement activities, making models, and setting up experiments. For global learners, choral reading, recorded books, story writing, computer programs, games group activities. For analytic learners, information presented in sequential steps, teacher directed, clear goals and requirements.

ROTE LEARNING VERSES MEANINGFUL LEARNING

1. Rote learning and Meaningful learning

Rote learning will be different from Meaningful learning, which generally means reproduction of the received information. It implies that the learned persons will follow a prescribed behavioral pattern.

In rote learning methods, the learner reproduces whatever she or he is taught and is not worried about the correctness of the information being imparted to her/him. On the other hand, in a meaningful learning process the learner is expected to properly examine the information received by her/him and question even the methodology at each and every step. She/he internalizes that information only after having full satisfaction as per her/his own reasoning. As such, whereas in the rote learning process the output is at most equal to the input, in meaningful learning process output can be more than the input. It is so because a meaningful learner will always contribute

something new. For example, a rote learner will learn an essay by properly assimilating the given information in her/his own creative way.

Basically, rote learning is a parasitic learning and the learner learns only whatever her/his parent or teacher teaches her/him. Her/his mind becomes totally parasitic, she/he is not able to bring out anything more than what she/he has learned from the teacher. A meaningful learner, on the other hand, learns how to stand on one's own feet. Hence, although a meaningful learner may have problems in the beginning, ultimately she/he would grow bigger in stature and would be able to bring new fruits. It would be interesting to note that parasitic plants never bear fruits. Only those plants bear fruits, which have roots sunk deep in the soil and which do not need any support of any other plant for their sustenance.

Rote learning leads to set responses only, but meaningful learning teaches one to critically appraise the problem and come to the right solution relevant for the particular problem. A rote learner is just like a parrot, which reproduces whatever it is taught, but a meaningful learner learns to examine everything critically with an open mind to bring out something new every time. A rote learner is, basically, a reproducer, whereas a meaningful learner is an innovative person.

A rote learner is, generally, a passive participant in any event, but a meaningful learner is an active participant in the whole process. Rote learning means just imitating a pattern, but meaningful learning means adding something new to the pattern to change it for better.

2.Meaningful learning verses Rote learning

Meaningful Learning	**Rote Learning**
Holistic	Fragmented
Dynamic	Static
Original	Repetitive
Participatory	Non-participatory
Driven by love for learning Independent	Driven by need for Parasitic
Output > Input	Output < or =Input

Definition of Active Learning

- ✓ Active learning is "anything that involves students in doing things and thinking about the things they are doing" (Bonwell & Eison, 1991, p. 2).
- ✓ Felder & Brent (2009) define active learning as "anything course-related that all students in a class session are called upon to do other than simply watching, listening and taking notes" (p.

Meaning of Active Learning

Active learning is generally defined as any instructional method that engages students in the learning process. In short, active learning requires students to do meaningful learning activities and think about what they are doing.

Active learning is learning which engages and challenges children and young people's thinking using real-life and imaginary situations. It takes full advantage of the opportunities for learning presented by:

- ➢ spontaneous play
- ➢ planned, purposeful play
- ➢ investigating and exploring
- ➢ events and life experiences
- ➢ focused learning and teaching.

PRINCIPLES OF ACTIVE LEARNING

Educational psychologists and pedagogues have identified several principles of learning, also referred to as laws of learning, which seem generally applicable to the learning process. These principles have been discovered, tested, and used in practical situations.

1. Learning involves the active construction of meaning by the learner

This well-established principle involves the fact that students link new information with information that they already know. Here new and old information are assembled into mental models. If the old information is faulty, that compromises the learning of new information then,learning can be thought about as a process of conceptual change in which faulty or incomplete models are repaired.

2. Individuals are likely to learn more when they learn with others than when they learn alone.

Many faculties are very independent learners and so struggle a bit with accepting this principle. However, it is based on "impressive results" in different disciplines "that support the power of getting students to work together to learn."

3. **Meaningful learning is facilitated by articulating explanations, whether to one's self, peers, or teachers**

Students learn to speak the languages of disciplines when they practice speaking those languages. That's part of what this principle involves, but it is also true that articulating an answer, an idea, or a level of understanding aids in learning.

4. **Purposive:** the relevance of the task with the students' concerns.
5. **Reflective:** students' reflection on the meaning of what is learnt.
6. **Negotiated:** negotiation of goals and methods of learning between students and teachers.
7. **Critical:** students appreciate different ways and means of learning the content.
8. **Complex:** students compare learning tasks with complexities existing in real life and making reflective analysis.
9. **Situation-driven:** the need of the situation is taken into consideration in order to establish learning tasks.
10. **Engaged:** real life tasks are reflected in the activities conducted for learning.
11. **Good Practice Encourages Contacts Between Students and Faculty**

Frequent student-faculty contact in and out of class is a most important factor in student motivation and involvement. Faculty concern helps students get through rough times and keep on working.

12. **Good Practice Develops Reciprocity and Cooperation among Students**

Learning is enhanced when it is more like a team effort than a solo race. Good learning, like good work, is collaborative and social, not competitive and isolated. Working with others often increases involvement in learning.

13. **Good Practice Uses Active Learning Techniques**

Learning is not a spectator sport. Students do not learn much just sitting in classes listening to teachers, memorizing prepackaged assignments, and spitting out answers. They must talk about what they are learning, write reflectively about it, relate it to past experiences, and apply it to their daily lives. They must make what they learn part of themselves. The range of technologies that encourage active learning is staggering. Many fall into one of three categories: tools and resources for learning by doing, time-delayed exchange, and real-time conversation. Today, all three usually can be supported with "worldware," i.e., software (such as word processors) originally developed for other purposes but now used for instruction, too. We've already discussed communication tools, so here we will focus on learning by doing.

14. **Good Practice Gives Prompt Feedback**

Knowing what you know and don't know focuses your learning. In getting started, students need help in assessing their existing knowledge and competence. Then, in classes, students need frequent opportunities to perform and receive feedback on their performance. At various points during college, and at its end, students need chances to reflect on what they have learned, what they still need to know, and how they might assess themselves. The ways in which new technologies can provide feedback are many — sometimes obvious, sometimes more subtle.

15. **Good Practice Emphasizes Time on Task**

Time plus energy equals learning. Learning to use one's time well is critical for students and professionals alike. Allocating realistic amounts of time means effective learning for students and effective teaching for faculty.

16. **Good Practice Communicates High Expectations**

New technologies can communicate high expectations explicitly and efficiently. Significant real-life problems, conflicting perspectives, or paradoxical data sets can set powerful learning challenges that drive students to not only acquire information but sharpen their cognitive skills of analysis, synthesis, application, and evaluation.

18.Good Practice Respects Diverse Talents and Ways of Learning

Many roads lead to learning. Different students bring different talents and styles to college. Brilliant students in a seminar might be all thumbs in a lab or studio; students rich in hands-on experience may not do so well with theory. Students need opportunities to show their talents and learn in ways that work for them. Then they can be pushed to learn in new ways that do not come so easily.

TECHNIQUES OF ACTIVE LEARNING

1. **Think Pair Share**: students ponder the answer to a question and then share their thoughts with a neighbor.
2. **Role Playing:** "each student takes the role of a person affected by an Earth science issue, such as a volcano or a polluted lake and studies the impacts of Earth science issues on human life and/or the effects of human activities on the world around us from the perspective of that person."
3. **Discovering Plate Boundaries:**this is a group discussion method employing many aspects of cooperative learning. In the example cited here, students use the "Jigsaw" technique to learn more about plate tectonics.
4. **Peer Review:**students review and comment on materials written by their classmates.
5. **Discussion:**promoting a successful discussion depends on correctly framing questions. Discover tips for framing discussion questions to promote higher order thinking.
6. **Problem Solving Using Real Data:**students use a variety of data to explore scientific questions.
7. **Game Based Learning:** uses competitive exercises, either pitting the students against each other or through computer simulations.

ACTIVE LEARNING AND THEIR IMPLICATIONS

These techniques are aimed at individual students they can very easily be used without interrupting the flow of the class. These exercises are particularly useful in providing the instructor with feedback concerning student understanding and retention of material.

1. The "One Minute Paper" - This is a highly effective technique for checking student progress, both in understanding the material and in reacting to course material. Ask students to take out a blank sheet of paper, pose a question (either specific or open-ended), and give them one (or perhaps two - but not many more) minute(s) to respond. Some sample questions include:"What is "scientific realism"?", "What is the activation energy for a chemical reaction?" and so on. Another good use of the minute paper is to ask questions like "What was the main point of today's class material?" This tells you whether or not the students are viewing the material in the way you envisioned.

2. Affective Response

This is similar to the above exercises, but here you are asking students to report their reactions to some facet of the course material - i.e., to provide an emotional or valuative response to the material. Obviously, this approach is limited to those subject areas in which such questions are appropriate (one should not, for instance, inquire into students' affective responses to vertebrate taxonomy). However, it can be quite a useful starting point for courses such as applied ethics, particularly as a precursor to theoretical analysis.

3. Daily Journal

This combines the advantages of the above three techniques, and allows for more in-depth discussion of or reaction to course material. The teacher may set aside class time for students to complete their journal entries, or assign this as homework. The only disadvantage to this approach is that the feedback will not be as "instant" as with the one-minute paper (and other assignments which you collect the day of the relevant lecture). But with this approach (particularly if entries are assigned for homework), The teacher may ask more complex questions, such as, "Do you think that determinism is correct, or that humans have free will? Explain your answer.",You might have students find and discuss reports of scientific studies in popular media on topics relevant to course material, such as global warming, the ozone layer, and so forth.

4. Reading Quiz

Clearly, this is one way to coerce students to read assigned material! Active learning depends upon students coming to class prepared. The reading quiz can also be used as an effective measure of student comprehension of the readings (so that you may gauge their level

of sophistication as readers). Further, by asking the same sorts of questions on several reading quizzes, you will give students guidance as to what to look for when reading assigned text.

5. Clarification Pauses

This is a simple technique aimed at fostering "active listening". Throughout a lecture, particularly after stating an important point or defining a key concept, stop, let it sink in, and then (after waiting a bit!) ask if anyone needs to have it clarified. You can also circulate around the room during these pauses to look at student notes, answer questions, etc. Students who would never ask a question in front of the whole class will ask questions during a clarification pause as you move about the room.

6. Questions and Answers

While most of us use questions as a way of prodding students and instantly testing comprehension, there are simple ways of tweaking our questioning techniques which increase student involvement and comprehension. Though some of the techniques listed here are "obvious", we will proceed on the principle that the obvious sometimes bears repeating (a useful pedagogical principle, to be sure!).

7. The "Socratic Method"

Taking its namesake from the most famous gadfly in history, this technique in its original format involved instructors "testing" student knowledge (of reading assignments, lectures, or perhaps applications of course material to a wider context) by asking questions during the course of a lecture. Typically, the instructor chooses a particular student, presents her with a question, and expects an answer forthwith; if the "chosen" student cannot answer the question presented, the instructor chooses another (and another) until the desired answer is received.

8.**Student Summary of Another Student's Answer**

In order to promote active listening, after one student has volunteered an answer to your question, ask another student to summarize the first student's response. Many students hear little of what their classmates have to say, waiting instead for the instructor to either correct or repeat the answer. Having students summarize or repeat each others' contributions to the course both fosters active participation by all students and promotes the idea that learning is a shared enterprise. Given the possibility of being asked to repeat a classmate' comments, most students will listen more attentively to each other.

9. **The Fish Bowl**

Students are given index cards, and asked to write down one question concerning the course material. They should be directed to ask a question of clarification regarding some aspect of the material which they do not fully understand; or, perhaps you may allow questions concerning the application of course material to practical contexts. At the end of the class period (or, at the beginning of the next class meeting if the question is assigned for homework), students deposit their questions in a fish bowl. The instructor then draws several questions out of the bowl and answers them for the class or asks the class to answer them. This technique can be combined with others (e.g., #8-9 above, and #2).

10. Finger Signals

This method provides instructors with a means of testing student comprehension without the waiting period or the grading time required for written quizzes. Students are asked questions and instructed to signal their answers by holding up the appropriate number of fingers immediately in front of their torsos (this makes it impossible for students to "copy", thus committing them to answer each question on their own). For example, the instructor might say "one finger for 'yes', two for 'no'", and then ask questions such as "Do all organic compounds contain carbon [hydrogen, etc.]?". Or, the instructor might have multiple choice questions prepared for the overhead projector and have the answers numbered (1) through (5), asking students to answer with finger signals. In very large classes the students can use a set of large cardboard signs with numbers written on them. This method allows instructors to assess student knowledge literally at a glance.

11. Flash Cards

A variation of the Finger Signals approach, this method tests students' comprehension through their response to flash cards held by the instructor. This is particularly useful in disciplines which utilize models or other visual stimuli, such as chemistry, physics or biology. For example, the instructor might flash the diagram of a chemical compound and ask "Does this compound react with H_2O?". This can be combined with finger signals.

12. Share/Pair

Grouping students in pairs allows many of the advantages of group work students have the opportunity to state their own views, to hear from others, to hone their argumentative skills, and so forth without the administrative "costs" of group work (time spent assigning people to

groups, class time used just for "getting in groups", and so on). Further, pairs make it virtually impossible for students to avoid participating thus making each person accountable.

13. Discussion

Students are asked to pair off and to respond to a question either in turn or as a pair. This can easily be combined with other techniques such as those under "Questions and Answers" or "Critical Thinking Motivators" above. For example, after students have responded to statements, such as "Whatever a society holds to be morally right is in fact morally right" with 'true' or 'false', they can be asked to compare answers to a limited number of questions and to discuss the statements on which they differed. In science classes students can be asked to explain some experimental data that supports a theory just discussed by the lecturer. Generally, this works best when students are given explicit directions, such as "Tell each other why you chose the answer you did".

14. Evaluation of Another Student's Work

Students are asked to complete an individual homework assignment or short paper. On the day the assignment is due, students submit one copy to the instructor to be graded and one copy to their partner. These may be assigned that day, or students may be assigned partners to work with throughout the term. Each student then takes their partner's work and depending on the nature of the assignment gives critical feedback, standardizes or assesses the arguments, corrects mistakes in problem-solving or grammar, and so forth. This is a particularly effective way to improve student writing.

SELF- LEARNING

1. Definition:

a) A way of learning about a subject that involves studying alone at home, rather than in a classroom with a teacher.

b) Learning done by oneself, without a teacher or instructor

c) Self-education is the act of learning about a subject or subjects in which one has had little to no formal education.

d) A person who has learned a subject without the benefit of a teacher or formal education; a self-taught person.

2. Importance of self learning

The importance of the self learning is a) Understanding How to Learn b). Learning without External Aids, and c) Preparing for the Future

A self-learning individual can aim to learn a little bit about everything, or they can work hard toward mastering a single subject.

Either way, it is the act of taking your learning into your control. It is this drive to further you which ultimately leads to success on a personal and financial level.

Everyone can benefit from continuing to strive for a well-rounded self-learning; this is especially true if you run your own business.

Benefits of Self-Learning

1. Student becomes an independent thinker.
2. Student learns to accept responsibility.
3. Student gains the freedom to learn without restrictions.
4. Student earns accountability.
5. Intrinsic rewards become the focus, that good feeling inside that comes from a job well done.
6. Student tests well because he is used to tackling problems on his own, which equals confidence.
7. Students retain more naturally when they do the work versus parents spoon feeding the information into them.
8. Students learn where to go when help is needed. There is no need to worry about gaps in their education because if they need to know something down the road, they will just look it up on their own.
9. Student has the courage to delve into an area of interest to study it without having to wait for a teacher to teach it.
10. Students become more than prepared for college study, which will require motivation and planning ahead.
11. Self-learning gives the opportunity to develop a good work ethic.

12. Self-learning allows the learner to go as deeply into a subject and interact with the subject matter as deeply as he would like to go.
13. Self-learning enables the learner to limit the number of interests undertaken so as not to be spread too thinly.
14. Self-learning allows the family to function as a family without emulating an institution at home.
15. Self-learning eliminates all excuses for not reaching one's potential. It will never be anyone else's fault if the student doesn't learn.
16. Self-learning is more fun than being taught at.
17. Self-learning means that mom can read great books rather than teacher's manuals and text books.
18. Self-learning trains one to go to the source for information which reduces the possibility of erroneous material.
19. Self-learning is the wave of the future now that so much information is available at our fingertips.
20. Self-learning means that babies and toddlers get more attention from mom because she is not busy playing teacher.

QUESTIONS FOR DISCUSSIONS AND REFLECTIONS

1. Give the meaning and definitions of learning.
2. Describe the elements of learning.
3. What are the basic principles of learning?
4. Discuss about the rote learning and meaningful learning.
5. How would you implicate the active learning?
6. Write an essay on self- learning.

UNIT II: NATURE OF TEACHING

Objectives

1. Develop an understanding of nature of teaching and characteristics of teaching
2. Analyze the views of great thinkers and philosophers on teaching
3. Discuss the characteristics of a reflective teacher

INTRODUCTION

Education is the manifestation of the perfection already in man, says Swami Vivekananda. Teaching is interaction between teacher and students and teaching is a continuous process. Here, we are going to focus on characteristics of good teaching, Views of great thinkers and philosophers on teaching and my goals as a teacher.

TEACHING: DEFINITION

According to **Gage**, "Teaching is a form of interpersonal influence aimed at changing the behavior potential of another person."

Edmund Amidon defined it as-" Teaching is an interactive process, primarily involving class room talk which takes place between teacher and pupil and occurs during certain definable activity."

Brubacher," Teaching is an arrangement and manipulation of a situation in which an individual will seek to overcome and from which he will learn in the course of doing so."

Skinner- Teaching is the arrangement of contingencies of reinforcement.

Ryans- "Teaching is concerned with the activities which are concerned with the guidance or direction of the learning of others."

AbbattMcmohan- ‘‘Teaching is helping other people to learn.’’

TEACHING: MEANING

1.The job or profession of a teacher

2.Something that is taught

3. The ideas and beliefs that are taught by a person, religion, etc.

4.The act or profession of a person who teaches.

5.Teaching is a process that improves the student's seeking level more easilyand it might be overcome any situation as an easy way.

6. Teaching means interaction of teacher and students. They participate for their mutual benefits. Both have their own objective and target to achieve them**.**
7. Teaching includes all the activities of providing education to other. The person who provides education is called teacher. The teacher uses different method for giving best knowledge to his students. He tries his best to make understand students. His duty is to encourage students to learn the subjects.
8. Teaching is the process of attending to people's needs, experiences and feelings, and making specific interventions to help them learn particular things.

CHARACTERISTICS OF GOOD TEACHING

- The main character of teaching is to provide guidance and training.
- Teaching is interaction between teacher and students.
- Teaching is an art to give knowledge to students with effective way.
- Teaching is a science to educate fact and cause different topics of different subjects.
- Teaching is continuous process.
- Teacher can teach effectively, if he has full confidence on the subject.
- Teaching encourages students to learn more and more.
- Teaching is formal as well as informal
- Teaching is communication of information to students. In teaching, teacher imparts information in interesting way, so that students can easily understand theinformation.
- Teaching is tool to help student to adjust himself in society and its environment.
- A desire to share your love of the subject with students
- An ability to make the material being taught stimulating and interesting
- A facility for engaging with students at their level of understanding
- A capacity to explain the material plainly
- A commitment to making it absolutely clear what has to be understood at what level and why?
- Showing concern and respect for students
- A commitment to encouraging independence
- An ability to improvise and adapt to new demands

- Using teaching methods and academic tasks that require students to learn actively, responsibly and co-operatively
- Using valid assessment methods
- A focus on key concepts, and students misunderstandings of them, rather than covering the ground
- Giving the highest quality feedback on student work
- A desire to learn from students and other sources about the effects of teaching and how it can be improved.

VIEWS OF GREAT THINKERS AND PHILOSOPHERS ON TEACHING

- **Teaching** is the mark of an educated mind to be able to entertain a thought without accepting it.Those who educate children well are more to be honored than parents, for these gave only life, those arts of living well.The educated differ from the uneducated as much as the living from the dead.

- Aristotle

- Plants are shaped by cultivation and men by education. .. We are born weak, we need strength; we are born totally unprovoked, we need aid; we are born stupid, we need judgment. Everything we do not have at our birth and which we need when we are grown is given us by education.Child should be made free to learn from nature since society corrupts values.There should be no formal learning, no discipline and no teaching of morals

- Jean Jacques Rousseau

- The first lessons with which we should irrigate his mind should be those which teach him to know himself, and to know how to die … and to live.

- De Montaigne

- Learned we may be with another man's learning: we can only be wise with wisdom of our own

- Euripides

- What a distressing contrast there is between the radiant intelligence of the child and the feeble mentality of the average adult.

- Sigmund Freud

- You must be the change you wish to see in the world.

- ❖ Basic education wherein the child was to also learn a skill/trade along with academic work. Thus, the school was to develop as a self sufficient institution.

-Mohandas Gandhi

- ❖ Education is the manifestation of the perfection already in man.
- ❖ We want that education by which character is formed, strength of mind is increased, the intellect is expanded, and by which one can stand on one's own feet.
- ❖ Teachyourselves, teach everyone his nature, call upon the sleeping soul and see how it awakes. Power will come, glory will come, goodness will come, purity will come, and everything that is excellent will come when this sleeping soul is roused to self-conscious activity.

❖ Education is the manifestation of the divine perfection, already existing in man.

- Swami Vivekananda

❖ "Education is something which makes man self-reliant and selfless".

-Rigved

❖ "Human education means the training which one gets from nature".

- Panini

❖ The widest road leading to the solution of all our problems is education.

❖ Learning should take place in nature and from nature and not be restricted to the classroom

- Rabintranath Tagore

❖ "Education which will offer the tools whereby one can live for the divine, for the country, for oneself and for others and this must be the ideal of every school which calls itself national".

- Sri Aurobindo

❖ All our world organizations will prove ineffective if the truth that love is stronger than hate does not inspire them

-Dr. Radhakrishnan

- Comprehensive views of education which wood transform the human mind. According to him, the religious spirit and the scientific attitude should form part of the same consciousness.

- J.Krishnamurti

- He promoted experiential learning. He focused on the project method of learning here the teacher is a facilitator every subject must be corrected to each them.

- John Dewey

- Focus on education of young children between the ages three and seven. She believed in self – education through development of individuality. She asserted that the gateway to knowledge is through sense experience. Special emphasis is given to the sense of touch.

-Maria Montessori

- Child must be educated in accordance with the laws of his development.
- Education should enable the child to realize unity in diversity.
- Creative self – activity through participation.
- Development the theory and practice of play in education. He combined play and work.

-Froebe

BECOMING A REFLECTIVE TEACHER AND HIS CHARACTERISTICS

- Understand Your Reasons for Teaching,
- Cultivate Ethical Behavior in Students and Yourself
- Pool Both Patience and Perseverance
- Design Curriculum That Works
- Perfect Instructional Practices and Assessment Skills
- Connect Positively to the Whole-School Culture
- Examines his or her own reactions to children or their actions to understand their source
- Is curious about children's play and watches it closely
- Documents details of children's conversations and activities

- Takes time to study notes and photos to puzzle out what is significant
- Eagerly shares stories about children's learning with families and co-workers
- Asks co-workers and children's families for their insights
- Reads professional literature to learn more
- Shows children photos and stories of themselves to hear their views
- Changes the environment and materials to encourage new play and learning possibilities
- Knows yourself.
- Finds the details that touch your heart and mind.
- Seeks the child's perspective.
- Examines the physical and social-emotional environment.
- Explores multiple points of view.
- Considers opportunities and possibilities for next steps.
- The reflective teacher analyzes his own lessons to see what worked and what did not. He makes changes as necessary. When a lesson does not go well, which will happen to everyone, he learns from it and does not teach the lesson the same way again.
- The reflective teacher recognizes the inherent differences in his classes (when he has more than one group of students) and does not treat all classes the same by teaching exactly the same lesson.
- The reflective teacher takes planned time within class to determine the efficacy of the lesson and take steps to improve it, if need be.
- The reflective teacher knows both his strengths and his students' strengths. His lessons are designed around their strengths and areas of interest to maximize learning.
- The reflective teacher is cognizant of his own weaknesses and takes planned steps to improve in those areas.
- The reflective teacher seeks feedback from many sources, such as other teachers, students, parents, and administrators. He is open to constructive criticism.

- The reflective teacher understands that he cannot optimally teach students by himself. Teaching is a complex field and it takes help from many others.
- The reflective teacher shares his experience with the understanding that it can benefit others who may be able to learn from his experiences.

MY GOALS AS A TEACHER

Teachers are in a unique position to have a direct impact on their students. Teachers can see their work in action, see the changes they affect, and in so doing they witness firsthand their goals coming to fruition. An architect can hope to design affordable homes for people in need but may not necessarily meet every person who benefits from his noble intentions. But teachers have direct interactions with the people they're helping, and whatever their goals may be, this allows them to see these goals realized.

Goals for teaching are highly individualized. Most teachers aren't in it for the money (and indeed there are many grants available for teachers to make funding a bit easier). They're not in it for the time off or the recognition they're in it to make a difference, to learn and to inspire, and they teach because they realize the value of education. Only you can set goals for yourself. Only you know why you want to teach. But no matter what those specific goals are, they can pretty much be summed into a single goal: You want to help people. And there are many ways you can help someone as a teacher. To name a few, teachers aspire to educate, to inspire, to learn and to affect positive change.

1. Educate

A great teacher should love educating students, and one of the principal goals many teachers set for themselves is to be the best educator they can be. There is something extremely gratifying about imparting information to your students and working with them to ensure they understand not only concepts, but practical applications as well. There are different methods you can use to teach, and while your teaching style is unique to you, the most important thing is that you engage, motivate and inspire students to learn. Many people teach out of a passion for their subject. If you truly love a particular topic, you may have a desire to share that knowledge with others indeed that passion can make you excel at it.

2. Inspire

Teachers seek to inspire students in all aspects of their lives, and for many teachers, their greatest goal is to be a role model. A role model is someone who inspires and encourages students to

strive for greatness, and teaches them through experience and commitment how to realize their full potential to become the best they can be. Teachers can inspire an uninterested student to become engrossed in learning. They can motivate them to participate and focus, and even bring introverted students out of their shells. A great teacher can get students reading, inspire a passion for languages, and make math or science fun, and turn history lessons into fun and exciting stories

3. Learn

Teaching is one of those careers where you learn something new every day, and many educators cite this as one of the main things they hope to get out of their career. On a strictly professional level, the education you attain to become a teacher opens your eyes to many things you may never have been exposed to before. Teachers also learn a great deal about themselves through teaching.

4. Change

Ambitious teachers are the ones who enter this career to affect change. These are the ones who want to meet the demand for great teachers: They make it their goal to help improve the quality of education for everyone.

QUESTIONS FOR DISCUSSIONS AND REFLECTIONS

1. Give the meaning and definitions of teaching.
2. List out the characteristics of good teaching.
3. Mention the views of great thinkers and philosophers on teaching.
4. Write an essay on - becoming a reflective teacher.
5. “My goals as a teacher”- Discuss.

UNIT III: BEHAVIOURAL THEORIES OF LEARNING

Objectives:

1. Understand the meaning of learning by the behaviorists
2. Learn and explain behavioural theories of learning.
3. Critically evaluate the strengths and limitations of theories of learning

INTRODUCTION

Learning means a change in behavior or learning is acquiring any skill that enriches our life. Learning is a relatively permanent change in the behavior of a person over time, or it is acquiring knowledge through study, experience or being taught. The above definitions are in general but we are going to discuss in detail below about learning presented by **Pavlov, Thorndike, Skinner, and by Bandura.**

LEARNING

The process by which a relatively lasting change in potential behaviour occurs because of practice or experience. Learning is also a process of acquiring modifications in existing knowledge, skills, habits, or tendencies through experience, practice, or exercise.

Gates and **others** "Learning is the modification of behaviour through experience"

Henry, P smith "Learning is the acquisition of new behaviour or strengthening or weakening of old behaviour as a result of experience".

Crow and Crow "Learning is the acquisition of habits, knowledge and attitudes. It involves new ways of doing things, and it operates in an individual's attempt to overcome obstacles or to adjust to new situations."

Skinner "Learning is the process of progressive behaviour adaptation."

BEHAVIORISM

Behaviorism is a theory of animal and human learning that only focuses on objectively observable behaviors and discounts mental activities. Behavior theorists define learning as nothing more than the acquisition of new behavior.

Behaviourism arose as a result of the controversy between structuralism and functionalism. Its chief proponent was J.B.Watson. He disagreed with both the structuralism and functionalism. According to Watson, it is useless to study elements of consciousness of effects on the different parts of the body because it does not help in the understanding of human nature.

For him, explanations of 'why' and 'how' were the all important factor. We can understand human nature by the study of one's physical activities, gestures and behaviour.

The subject-matter of psychology according to behaviourists is human and animal activity, which can be observed and measured in an objective way. The purpose of psychology is to discover ways and means of prediction and control of human and animal behaviour. Consciousness, if at all it exists, is not the subject for scientific study. The unit of behaviour should be reflexes or stimulus response connections. One's behaviour is composed of stimulus response bond, which can be successfully analysed by objective and scientific methods. Therefore the chief method of psychology is observation of behaviour. Watson was an extreme environmentalist. For him, environment is much more important than heredity in the determination of behaviour.

Learning as a process focuses on what happens when the learning takes place. Explanations of what happens constitute learning theories. A learning theory is an attempt to describe how people and animals learn, thereby helping us understand the inherently complex process of learning. Learning theories have two chief values according to Hill (2002). One is in providing us with vocabulary and a conceptual framework for interpreting the examples of learning that we observe. The other is in suggesting where to look for solutions to practical problems.

PAVLOV'S CLASSICAL CONDITIONING THEORY

A Russian psychologist named Ivan Pavlov encountered an unforeseen problem: the dog in his experiment salivated not only upon actually eating but also when it saw the food, noticed the man who usually brought it, or even heard his footsteps. Pavlov began time study this phenomenon, which he called 'conditioning'. To understand the nature of the process of conditioning, Pavlov performed the following experiment.

1. Classical Condition (Pavlov)

In his experiment, Pavlov kept a hungry dog for a few days and then tied him to the experimental table which was fitted with certain mechanically as far as it was possible to do so. The observer himself remained hidden from the dog but was able to view the experiment by means of a set if mirrors. Arrangement was made to give food to the dog through an automatic mechanism. He also arranged for a bell to ring every time food was presented to the dog. When the food was put before the dog and the bell was rung, there was automatic secretion of saliva from the mouth of the dog. The activity of presenting the food accompanied with the ringing of the bell was repeated several timed and the amount of saliva secreted was measured.

After several trials the dog was given no food but the bell was rung. In this case also, the amount of saliva secreted was recorded and measured. It was found that even the absence of food (the natural stimulus), the ringing of the bell (an artificial stimulus) caused the dog to secrete the saliva (natural response).

The above experiment thus brings to light four essential elements of the conditioning process. The first elements is a natural stimulus, technically known as unconditioned stimulus (US) i.e. food. It results in a natural response called the unconditioned response (UR). This response constitutes the second element .The third element is the artificial stimulus, i.e. the ringing of the bell which is technically known as a conditioned stimulus (CS). It is substituted for the natural stimulus (food). To begin with, the conditioned stimulus does not evoke the desired response, i.e. the conditioned response (CR). The fourth element is the chain the conditioning process. However, as a result of conditioning, one learns to produce behaviour in the form of a conditioned response to a conditioned stimulus.

2. Principles of Classical conditioning

- **Extinction: -** The process of gradual disappearance of the conditioned response or disconnection of the S-R association is called extinction.
- **Spontaneous recovery:** - After extinction, when a conditioned response is no longer evident, the behaviour often reappears spontaneously but at a reduced intensity. The phenomenon – the reappearance of apparently extinguished conditioned response after an interval in which the pairing of conditioned stimulus (CS) and unconditioned stimulus

(US) has not been repeated is called spontaneous recovery. It shows that, the learning is suppressed rather than forgotten. As the time passes, the suppression may become so strong that there would, ultimately be no further possibility of SR.

- **Stimulus generalization:** - Responding to the stimuli in a generalized way was termed as stimulus generalisation with reference to a particular stage of learning behaviour in which an individual once conditioned to respond to specific stimulus is made to respond in the same way in response to other stimuli of similar nature.
- **Stimulus discrimination:** - It is the opposite of stimulus generalization. In sharp contrast to responding in a usual fashion, the subject learn to react different in different situations. Conditioning through the mechanism of stimulus discrimination one learns to react only to a single specific stimulus out of the multiplicity of stimuli and to distinguish and discriminate one from the others among a variety of stimuli present in our environment.

Implications of Classical Conditioning

- In day to day life, fear, love, hatred towards an object or phenomenon or event is created through conditioning.
- Most learning is associated with the process of conditioning i.e. stimulus response association and substitution.
- The phenomenon of stimulus generalization and discrimination goes on throughout our lives.
- Abnormality in one's behaviour may to a great extent be the result of conditioning.
- Much of our behaviour in the shape of interests, attitudes, habits, sense of application or criticism, mood & temperaments is fashioned through conditioning.
- Conditioning helps in learning what is desirable and also unlearning what's undesirable

LAW OF EFFECT E.L THORNDIKE

Edward Lee Thorndike (1874-1949) was the first American psychologist who put forward the Trial and Error Theory of learning. According to Thorndike, all learning takes place because of formation of bond or connection between stimulus and response. He further says that learning takes place through a process of approximation and correction. A person makes a number of trials, some responses do not give satisfaction to the individual but he goes on making

further trials until he gets satisfactory responses. Thorndike conducted a number of experiments on animals to explain the process of learning. His most widely quoted experiment is with a cat placed in a puzzle box.

Thorndike put a hungry cat in a puzzle box. The box had one door, which could be opened by manipulating a latch of the door. A fish was placed outside the box. The cat being hungry had the motivation of eating fish outside the box. However, the obstacle was the latch on the door. The cat made random movements inside the box indicating trial and error type of behaviour biting at the box, scratching the box, walking around, pulling and jumping etc. to come out to get the food. Now in the course of her movements, the latch was manipulated accidently and the cat came out to get the food. Over a series of successive trials, the cat took shorter and shorter time, committed less number of errors, and was in a position to manipulate the latch as soon as it was put in the box and learnt the art of opening the door. Thorndike concluded that it was only after many random trials that the cat was able to hit upon the solutions.

Trial and Error Learning. An analysis of the learning behaviour of the cat in the box shows that besides trial and error the principles of goal, motivation, explanation and reinforcement are involved in the process of learning by Trial and Error.

Laws of Learning

Based on Trial and Error Learning Theory, Thorndike gave certain laws of Learning. We shall discuss three fundamental Laws of Learning in this section. These laws are:

1. Law of Readiness

This law refers to the fact that learning takes place only when the learner is prepared to learn. No amount of efforts can make the child learn if the child is not ready to learn. Thus, the Law of Readiness means mental preparation for action. It is not to force the child to learn if he is not ready. Learning failures are the result of forcing the learner to learn when he is not ready to learn something.

Educational Implications of Law of Readiness

The law draws the attention of teacher to the motivation of the child. The teacher must consider the psycho-biological readiness of the students to ensure successful learning experiences. Curriculum / Learning experiences should be according to the mental level of maturity of the child. If this is not so, there will be poor comprehension and readiness may vanish.

2. Law of Exercise

This law explains the role of practice in learning. According to this law, learning becomes efficient through practice or exercise. The dictum 'Practice makes a man perfect' goes very well with this law.

Educational Implications

Exercise occupies an important place in learning. Teacher must repeat, give sufficient drill in some subjects like mathematics, drawing, music or vocabulary for fixing material in the minds of the students. Thorndike later revised this law of exercise and accordingly it is accepted that practice does bring improvement in learning but it in itself is not sufficient. Always practice must be followed by some reward or satisfaction to the learner. The learner must be motivated to learn.

3. Law of Effect

This is most important of Thorndike's laws, which state that when a connection between stimulus and response is accompanied by satisfying state, its strength is increased. On the other hand, when a connection is accompanied by an annoying state of affairs, its strength is reduced or weakened. The saying 'nothing succeeds like success' goes very well with this law. In other words, the responses that produce satisfaction or comfort for the learner are strengthened and responses that produce annoyance or discomfort for the learner are weakened.

Educational Implications

This law signifies the use of reinforcement or feedback in learning. This implies that learning trials must be associated with satisfying consequences. The teacher can use rewards to strengthen certain responses and punishment to weaken others.

OPERANT CONDITIONING AND SHAPPING (SKINNER)

Skinner's views were slightly less extreme than those of Watson (1913). Skinner believed that we do have such a thing as a mind, but that it is simply more productive to study observable behavior rather than internal mental events. The work of Skinner was rooted in a view that classical conditioning was far too simplistic to be a complete explanation of complex human behavior. He believed that the best way to understand behavior is to look at the causes of an action and its consequences. He called this approach operant conditioning.

Operant Conditioning deals with operants - intentional actions that have an effect on the surrounding environment. Skinner set out to identify the processes which made certain operant behaviours more or less likely to occur. Skinner's theory of operant conditioning was based on the work of Thorndike (1905). Edward Thorndike studied learning in animals using a puzzle box to propose the theory known as the 'Law of Effect'.

1. BF Skinner: Operant Conditioning

Skinner is regarded as the father of Operant Conditioning, but his work was based on Thorndike's law of effect. Skinner introduced a new term into the Law of Effect - Reinforcement. Behavior which is reinforced tends to be repeated (i.e. strengthened); behavior which is not reinforced tends to die out-or be extinguished (i.e. weakened).Skinner (1948) studied operant conditioning by conducting experiments using animals which he placed in a 'Skinner Box' which was similar to Thorndike's puzzle box.

B.F. Skinner (1938) coined the term operant conditioning; it means roughly changing of behavior by the use of reinforcement which is given after the desired response. Skinner identified three types of responses or operant that can follow behavior.

• **Neutral operants**: responses from the environment that neither increase nor decrease the probability of a behavior being repeated.

• **Reinforcers:** Responses from the environment that increase the probability of a behavior being repeated. Reinforcers can be either positive or negative.

• **Punishers**: Responses from the environment that decrease the likelihood of a behavior being repeated. Punishment weakens behavior.

2. Positive Reinforcement

Skinner showed how positive reinforcement worked by placing a hungry rat in his Skinner box. The box contained a lever on the side and as the rat moved about the box it would accidentally knock the lever. Immediately it did so a food pellet would drop into a container next to the lever. The rats quickly learned to go straight to the lever after a few times of being put in the box. The consequence of receiving food if they pressed the lever ensured that they would repeat the action again and again.

Positive reinforcement strengthens a behavior by providing a consequence an individual finds rewarding. For example, if your teacher gives you £5 each time you complete your homework (i.e. a reward) you will be more likely to repeat this behavior in the future, thus strengthening the behavior of completing your homework.

3. Negative Reinforcement

The removal of an unpleasant reinforce can also strengthen behavior. This is known as negative reinforcement because it is the removal of an adverse stimulus which is 'rewarding' to the animal or person. Negative reinforcement strengthens behavior because it stops or removes an unpleasant experience. For example, if you do not complete your homework, you give your teacher £5. You will complete your homework to avoid paying £5, thus strengthening the behavior of completing your homework.

Skinner showed how negative reinforcement worked by placing a rat in his Skinner box and then subjecting it to an unpleasant electric current which caused it some discomfort. As the rat moved about the box it would accidentally knock the lever. Immediately it did so the electric

current would be switched off. The rats quickly learned to go straight to the lever after a few times of being put in the box. The consequence of escaping the electric current ensured that they would repeat the action again and again.

In fact Skinner even taught the rats to avoid the electric current by turning on a light just before the electric current came on. The rats soon learned to press the lever when the light came on because they knew that this would stop the electric current being switched on. These two learned responses are known as Escape Learning and Avoidance Learning.

4. Punishment (weakens behavior)

Punishment is defined as the opposite of reinforcement since it is designed to weaken or eliminate a response rather than increase it. It is an aversive event that decreases the behavior that it followsLike reinforcement, punishment can work either by directly applying an unpleasant stimulus like a shock after a response or by removing a potentially rewarding stimulus, for instance, deducting someone's pocket money to punish undesirable behavior.

Note: It is not always easy to distinguish between punishment and negative reinforcement.

There are many problems with using punishment, such as:

- Punished behavior is not forgotten, it's suppressed - behavior returns when punishment is no longer present.
- Causes increased aggression - shows that aggression is a way to cope with problems.
- Creates fear that can generalize to undesirable behaviors, e.g., fear of school.
- Does not necessarily guide toward desired behavior - reinforcement tells you what to do, punishment only tells you what not to do.

5. Schedules of Reinforcement

Imagine a rat in a "Skinner box". In operant conditioning if no food pellet is delivered immediately after the lever is pressed then after several attempts the rat stops pressing the lever. The behavior has been extinguished. Behaviorists discovered that different patterns (or schedules) of reinforcement had different effects on the speed of learning and on extinction.

Ferster and Skinner (1957) devised different ways of delivering reinforcement, and found that this had effects

- The Response Rate - The rate at which the rat pressed the lever (i.e. how hard the rat worked).
- The Extinction Rate - The rate at which lever pressing dies out (i.e. how soon the rat gave up).

Skinner found that the type of reinforcement which produces the slowest rate of extinction is variable-ratio reinforcement. The type of reinforcement which has the quickest rate of extinction is continuous reinforcement.

1. Continuous Reinforcement

An animal/human is positively reinforced every time a specific behaviour occurs, e.g. every time a lever is pressed a pellet is delivered and then food delivery is shut off.

- Response rate is SLOW
- Extinction rate is FAST

2. Fixed Ratio Reinforcement

Behavior is reinforced only after the behavior occurs a specified number of times. E.g. one reinforcement is given after every so many correct responses, e.g. after every 5th response. For example a child receives a star for every five words spelt correctly.

- Response rate is FAST
- Extinction rate is MEDIUM

3. Fixed Interval Reinforcement

One reinforcement is given after a fixed time interval providing at least one correct response has been made. An example is being paid by the hour. Another example would be every 15 minutes (half hour, hour, etc.) a pellet is delivered (providing at least one lever press has been made) then food delivery is shut off.

- Response rate is MEDIUM
- Extinction rate is MEDIUM

4. Variable Ratio Reinforcement

Behavior is reinforced after an unpredictable number of times. For examples, gambling or fishing.

- Response rate is FAST
- Extinction rate is SLOW (very hard to extinguish because of unpredictability

5. Variable Interval Reinforcement

Providing one correct response has been made, reinforcement is given after an unpredictable amount of time has passed, e.g. on average every 5 minutes. An example is a self-employed person being paid at unpredictable times.

- Response rate is FAST
- Extinction rate is SLOW

SOCIAL LEARNING – (BANDURA)

A person learns through observation. A student observes others behaviour (elders, teachers, people around him) and learns through the observation. Allbert Bandura appreciates the role of such observation in learning. He is called a social psychologist. The cognitive psychologist –who appreciate the role of observation in learning are termed as social psychologist and termed the theory of learning they propagate is known as the social learning theory.

Introducing his theory Bandura (Lewin – 1978) writes "we do not blindly respond to environmental stimuli rather we pick and choose from many environment options, basing our decisions on our own insights and experiences. This we do through observational learning or learning through indirect experiences is the base of social learning theory.

Our learning is acquired through watching and listening to other people. The children from the very beginning keenly observe the behaviour of others. Most commonly of the people nearest to them like parents, members of family, teachers, the older members of society. In turn they try to imitate and do what they observe. The power of observational learning can be confirmed through laboratory experiments as well as through observation in our daily life. Child may also incorporate and imitate the behaviour of the characters he read about in novels, hears

about over the radio or sees on T.V. or in movies. The person whose behaviour he observes and often imitates are known as models and observational learning is reoffered to as modelling.

Observational learning can thus provide extra dimensions and opportunities for the learners in addition to their learning through self-experience and direct involvement with environmental consequences.

1. Bandura explains the following steps usually involved in learning

- **Attending and perceiving: -** observation of a role model catches the attention of a child.
- **Remembering the behaviour:** - The child remembers the actions and styles.
- **Converting the memory into action:** - The child imitates the role model. A behaviour observed and remembered by the learner is analyzed in terms it its acceptability to the learner. It is transformed into action only afterwards and thus the observed relevant and accepted aspect of the model's behaviour are imitated by the learner.
- **Reinforcement of the imitated behaviour:** - The child tries to change himself into the role of a model. The behaviour of the model imitated by the learner is reinforced for proper adoption and further continuance.

In this way social learning through observation and modelling proves to be an effective means of learning many things concerning one's behaviour. The impact of his observations and nature at his environment, his expression of love, anger, hatred companionship, friendship, understanding being and mixing with the group or being alone, express his mode of observation and behaviour. All this reaction and responses depends upon what has been observed, remembered, imitated and reinforced it in the context of his experiences and models.

BASIC ASSUMPTIONS OF BEHAVIOUR THEORY

The Evidence from Research on Behavioral Theories:

Pavlov's work on classical conditioning (Pavlov, 1927) and Skinner's concept of operant conditioning (Skinner, 1953) have provided the blueprints for evidence-based applications in behaviorism. Behaviorism has since proven effective, for example in the diagnosis of patients with mental disorders by operationalizing the acquisition of new behavior (Barrett &Lindsey,

1962), improving item-recall for dementia patients or for conditioning students in military and technical education.

In combination with cognitive therapy, behavior modification helps autistic children with the acquisition of life-skills (Viruses-Ortega et al., 2013). Behaviorism has proven its efficacy in contexts that require the performance of convergent and highly context-dependent tasks.

STRENGTHS AND LIMITATION

A central strength of behaviorism is that results can be reliably reproduced experimentally such as in a Skinner box or similar apparatus. This evident advantage translates into several distinct counter-arguments. Firstly, behaviorism does not acknowledge active human agency, this is conscious self-awareness (Chalmers, 1996) which is typically mediated via language. Key properties of human agency are intentionality, forethought and self-reactiveness all of which play no role in behaviorism.

Secondly, a behaviorist perspective cannot explain how people make procedural decisions or negotiate between various types of potential rewards and goals. Most of human behavior is not based on conditioned, convergent reflexes on a single task, but correlates to preceding mental processes that are divergent and collaborative in nature. Besides, divergent thinking is related to developing interpersonal trust (Selaro et al., 2014). The Theory of Planned Behavior (Ajzen 1991, 2002) could be regarded as the anti-thesis to behaviorism since it postulates attitudes, norms, a person's perceived behavioral control and intentions as precursors to behavior, rather than specific environmental stimuli.

Since reflexes are strictly defined as physiological interactions, behaviorism cannot explain individual differences in human learning, variations in learning- styles and the influence of personality on learning (Rosander, 2013; Kamarulzaman, 2014). The neurological functionality of reflexes is constrained to given brain organization (Goffaux et al., 2014) and neurotransmitter processes (Striepens et al., 2014) and excludes higher brain functions invoking mental processes (Degen, 2014). Behavioral studies and therapies in clinical settings also run into ethical problems on how to obtain legal consent for behavior modification, such as for patients with mental disorders and neurological impairments (Digdon et al., 2014).

CONCLUSION

Behaviorism has valid, but limited applications. In clinical psychology behaviorist theory is typically complemented with cognitive theory to produce more efficient results. In modern military education, issues such as professional ethics and mindfulness require cognitive skills and training the same applies to training in sports. Behaviorism remains highly relevant in animal conditioning. It has however, with the advent of neurological imaging technology and the scientific measurement of cognitive processes ceased as a leading theory of learning. Few people know that Pavlov not only experimented on dogs, but also on children and that Skinner envisioned operant conditioning on societal scale, approaches that have become unacceptable in contemporary scientific ethics. Behaviorism does have its applications, but they must be seen in the context of human agency.

Questions for Discussion and Reflection

1. Discuss in detail the classical conditioning of Pavlov.
2. Explain the operant conditioning of Thorndike.
3. Write an essay on Bandura's social learning.
4. Write a note on the contribution of B.F Skinner to learning.
5. Discuss the social learning of Bandura.

UNIT IV: COGNITIVE AND HUMANISTIC THEORIES OF LEARNING

Objectives:

1. Comprehend the meaning of learning by cognitive psychologist
2. Discuss the importance of cognitive and humanistic theory
3. Analyze the different stages of intellectual development of Piaget.

LEARNING

Behavioral learning theorists believe that learning has occurred when you can see changes in behavior. The behavioral learning model is the result of conditioning. The basis of conditioning is that a reward following a desirable response acts as areinforce and to increase the likelihood that the desirable response will be repeated. Reinforcement is the core of the behaviorist approach. Continuous reinforcement in every instance of desirable behavior is useful when a behavior is being introduced.

COGNITIVE AND HUMANISTIC THEORIES

Cognitive learning theorists believe that learning is an internal process in which information is integrated or internalized into one's cognitive or intellectual structure. Learning occurs through internal processing of information. From the cognitive viewpoint, how new information is presented is important. In the first or cognitive phase of learning, the patient learns the overall picture of what the task is and the sequences involved. In the second, or fixation learning phase, the learner begins to gain skill in performing the task.

Whether a physical task is learned as a whole or part by part depends on its complexity. For example, learning how to take a blood pressure is a complex task. The patient must learn how to physically manipulate the blood pressure manometer, learn how to hear blood pressure sounds, and understand the meaning of the sounds. Each of these tasks can be practiced as a separate activity, then combined. In the last phase of learning, the automatic phase, the patient gains increasing confidence and competence in performing the task.

Humanist learning theorists view learning as a function of the whole person and believe that learning cannot take place unless both the cognitive and affective domains are involved. The

individual's capacity for self-determination is an important part of humanist theory. For example, humanist theory is used to help post myocardial infarction patients regain a sense of personal control over their health care management. It is possible to select elements of each theory that you find useful in patient teaching.

All patients grow with success and do better when achievements are recognized and reinforced. Respecting the whole person in a supportive environment can encourage learning. Learning is also fostered through structuring information appropriately and presenting it in meaningful segments with appropriate feedback.

1. Choice and Control

The humanistic approach places a great deal of emphasis on students' choice and control over the course of their education. Students are encouraged to make choices that range from day-to-day activities to periodically setting future life goals. This allows for students to focus on a specific subject of interest for any amount of time they choose, within reason. Humanistic teachers believe it is important for students to be motivated and engaged in the material they are learning, and this happens when the topic is something the students need and want to know.

2. Felt Concern

Humanistic education tends to focus on the felt concerns and interests of the students intertwining with the intellect. It is believed that the overall mood and feeling of the students can either hinder or foster the process of learning.

3. The Whole Person

Humanistic educators believe that both feelings and knowledge are important to the learning process. Unlike traditional educators, humanistic teachers do not separate the cognitive and affective domains. This aspect also relates to the curriculum in the sense that lessons and activities provide focus on various aspects of the student and not just rote memorization through note taking and lecturing.

INSIGHT LEARNING-KOHLER

Introduction

Max Wertheimer is the father of Gestalt Theory. Later on, Wertheimer's theory was further refined and developed by Kurt Koffka and Wolfgang Kohler. **C.V.Good** defines gestalt-configration,as total structure, form or shape, a term designating an undivided articulate as a whole that cannot be made by the more addition of independent elements, the nature of each element depending on its relationship to the whole. The term **'gestalt'** means a whole, a total composition. According to this theory, an individual learns an object as a whole, a single entity, not in parts or bits. In other words, an individual's understanding of an object comprehends the whole object, not merely parts or bits of the object. This theory can be summed up in the succinct statement: 'The whole is greater than the sum of its parts.'

1. Kohler's Experiments

In order to establish the existence of insight, Kohler conducted a number of experiments on a chimpanzee named **Sultan**. Although he conducted a number of other experiments on dogs, hens, and other creatures, his experiments with Sultan were the most noteworthy. Kohler divided his experiment in to four steps.

- **Experiment**- Sultan was placed in a cage. A stick was placed in the cage and a banana just outside the cage, but outside Sultans direct reach. Sultan made many attempts to obtain the banana but it failed. It sat down in despair. But, after sometime it suddenly got up, lifted the stick and used it to draw the banana towards itself.
- **Experiment**- In the second stage, Kohler placed inside the cage two sticks which could be joined to each other. This time the banana was so placed that it could not be drown by the chimpanzee towards itself with a single stick. After numerous attempts, Sultan joined the two sticks together and succeeded in obtaining the banana.
- **Experiment**- In the third step, Kohler hung the banana from the roof of the cage of such a height as to ensure that Sultan could not reach it even by jumping upwards. A box was also placed inside the cage. After many attempts, Sultan climbed up on the box and obtained the bananas.

- **Experiment**- In the final step, Kohler placed two boxes at one place in the cage the banana was placed at an even high level. At first, Sultan kept on trying to reach the banana by standing up on one box, but after numerous failures, it placed one box upon the other and claiming quit obtained the banana.

2. Factors Influencing Insight

Many experiments have thrown light upon and established the various factors which influence insight. Some of them are mentioned below;

- **Experience** - Past experiences help in the insightful solution of the problems. A child cannot solve the problems of Modern Mathematics unless he is well acquainted with its symbolic language.
- **Intelligence** – Insightful solution depends upon the basic intelligence of the learner. The more intelligent the individual is the greater will be his insight.
- **Learning Situation** – How insightfully the organism will react depends upon the situation in which he has to act. Some situations are more favorable than the others for insightful solution. As a common observation, insight occurs when the learning situation is so arranged that all the necessary aspects are open for observation.
- **Initial Efforts or Trial and Error** – Insightful learning has to pass through the process of trial and error. Whatever an activity may be, attempts or efforts or trials always lie at its root. This opens the way for insightful learning.
- **Repetition and Generalization** – After having an insightful solution of a particular type of problem, the organism tries to repeat it in another situation, demanding similar type of solution. The way found in one situation helps him to react insightfully in the other identical situations.

3. Characteristics of Insight

The above mentioned experiments make it quite obvious that learning by insight has certain characteristics of its own. They are briefly as follows;

- Insight is sudden.
- Insight alters perception.

- Old objects appear in new patterns and organization by virtue of insight.
- Insight is relative to the intellectual level. The higher species of animals including human beings have more insight than the members of lower species.
- In insight, understanding is more useful than dexterity of hands.
- Previous experience is of assistance in insight. An organized perception is an essential factor in learning.
- Maturity also affects insight as evidenced by the smoother working of insight in older age than in adolescence.
- If the pieces essential for the solution of the puzzle are present together when perceived, insight comes about earlier.
- Learning by insight is associative learning. Insight appears suddenly after the manipulation of thoughts or objects for a small, through significant length of time.
- The insight gained in particular circumstances is of assistance in other circumstances.

4. Principles Involved in Insightful Learning

- Law of figure ground,
- Law of inquisitive
- Law of continuity
- Law of similarity
- Law of proximity

5. Educational Implications

- Subject matter (learning material) should be presented in Gestalt form. The plant or flower as a whole be presented before the students and later on the parts should be emphasized.
- In the organization of the syllabus and planning of the curriculum, the Gestalt principle should be given due consideration. A particular subject should not be treated as the mere collection of isolated facts or topics. It should be closely integrated into a whole. Similarly the curriculum should reflect unity and cohesiveness.

- This theory has brought motivation in the fore-front by assigning purpose and motive, the central role in learning process. It is goal oriented. Purpose or goals of learning should be made clear to the students, before the teacher starts teaching.
- The greater contribution of the insight theory of learning is that it has made learning an intelligent task requiring mental abilities. It has called a halt to the age old mechanical memorization, drill and practice work which lack in basic understanding and use of thinking, reasoning and creative mental powers.
- It emphasizes that the learner must be given opportunities for using his mental abilities. Instead of telling him, how to do a work or solve a problem, he should be placed in the position of an independent enquirer and discoverer.
- As insight depends upon capacity, all pupils are not able to use insight in an equal measure. The teacher recognizes differences in capacity and age and understands classroom implications of readiness.

MODES OF COGNITIVE DEVELOPMENT - BRUNER

The outcome of cognitive development is thinking. The intelligent mind creates from experience "generic coding systems that permit one to go beyond the data to new and possibly fruitful predictions" (Bruner, 1957, p. 234).Thus, children as they grow must acquire a way of representing the "recurrent regularities" in their environment.

So, to Bruner, important outcomes of learning include not just the concepts, categories, and problem-solving procedures invented previously by the culture, but also the ability to "invent" these things for oneself. Cognitive growth involves an interaction between basic human capabilities and "culturally invented technologies that serve as amplifiers of these capabilities."

These culturally invented technologies include not just obvious things such as computers and television, but also more abstract notions such as the way a culture categorizes phenomena, and language itself. Bruner would likely agree with Vygotsky that language serves to mediate between environmental stimuli and the individual's response.

1. The aim of education should be to create autonomous learners

In his research on the cognitive development of children (1966), Jerome Bruner proposed three modes of representation

- Enactive representation (action-based)
- Iconic representation (image-based)
- Symbolic representation (language-based)

2. Bruner's Three Modes of Representation

Modes of representation are the way in which information or knowledge are stored and encoded in memory. Rather than neat age related stages (like Piaget), the modes of representation are integrated and only loosely sequential as they "translate" into each other.

Enactive (0 - 1 years)

This appears first. It involves encoding **action based information** and storing it in our memory. For example, in the form of movement as a **muscle memory**, a baby might remember the action of shaking a rattle. The child represents past events through motor responses, i.e. an infant will “shake a rattle” which has just been removed or dropped, as if the movements themselves are expected to produce the accustomed sound. And this is not just limited to children.

Many adults can perform a variety of motor tasks (typing, sewing a shirt, operating a lawn mower) that they would find difficult to describe in iconic (picture) or symbolic (word) form.

Iconic (1 - 6 years)

This is where information is stored visually in the form of **images** (a mental picture in the mind’s eye). For some, this is conscious; others say they don’t experience it. This may explain why, when we are learning a new subject, it is often helpful to have diagrams or illustrations to accompany verbal information.

Symbolic (7 years onwards)

This develops last. This is where information is stored in the form of a code or symbol, such as **language**. This is the most adaptable form of representation, for actions & images have a fixed relation to that which they represent. Dog is a symbolic representation of a single class.

Symbols are flexible in that they can be manipulated, ordered, classified etc., so the user isn't constrained by actions or images. In the symbolic stage, knowledge is stored primarily as words, mathematical symbols, or in other symbol systems.

Bruner's constructivist theory suggests it is effective when faced with new material to follow a progression from enactive to iconic to symbolic representation; this holds true even for adult learners. A true instructional designer, Bruner's work also suggests that a learner even of a very young age is capable of learning any material so long as the instruction is organized appropriately, in sharp contrast to the beliefs of Piaget and other stage theorists.

3. Educational Implications

For Bruner (1961), the purpose of education is not to impart knowledge, but instead to facilitate a child's thinking and problem solving skills which can then be transferred to a range of situations. Specifically, education should also develop symbolic thinking in children.

Bruner (1960) explained how it was possible through the concept of the **spiral curriculum**. This involved information being structured so that complex ideas can be taught at a simplified level first, and then re-visited at more complex levels later on. Therefore, subjects would be taught at levels of gradually increasing difficultly (hence the spiral analogy). Ideally, teaching his way should lead to children being able to solve problems by themselves.

Bruner (1961) proposes that learners' construct their own knowledge and do this by organizing and categorizing information using a coding system. Bruner believed that the most effective way to develop a coding system is to discover it rather than being told it by the teacher. The concept of **discovery learning** implies that students construct their own knowledge for themselves (also known as a constructivist approach).

The role of the teacher should not be to teach information by rote learning, but instead to facilitate the learning process. This means that a good teacher will design lessons that help student discover the relationship between bits of information. To do this a teacher must give students the information they need, but without organizing for them. The use of the spiral curriculum can aid the process of *discovery learning*.

PIAGET'S THEORY OF COGNITIVE DEVELOPMENT

Jean Piaget's prominent work is his theory on the four stages of cognitive development. He was one of the most influential researchers in the area of developmental psychology in the 20th century whose primary interest was in biological influences on how we come to know, and the developmental stages we move through as we acquire this ability.

The theory of cognitive development focuses on mental processes such as perceiving, remembering, believing, and reasoning. Reasoning is the essence of intelligence, and reasoning is what Piaget studied in order to discover how we come to know. Piaget believed that cognitive development is cumulative; that is, understanding a new experience grows out of a previous learning experience.

1. Description of Piaget's Theory on the Stages of Cognitive Development

Piaget (1973) believed children will construct an understanding of the world around them, and will then experience discrepancies between what they already know and what they discover in their environment.

There are three elements to Piaget's Cognitive Development Theory:

- Schema
- The Three processes that enable the transition from one stage to another
- The four stages of cognitive development

Schema

A schema is the basic building block of intelligent behaviour, a form of organizing information that a person uses to interpret the things he or she sees, hears, smell, and touches. A schema can be thought of as a unit of knowledge, relating to one aspect of the world including objects, actions, and abstract (theoretical) concepts. We use schemas to understand and to respond to situations. We store them and apply them when needed.

The Three Processes

The three processes that enable the transition from one cognitive stage to another are assimilation, accommodation and equilibration. Educators generally view these processes as an explanation of cognitive learning processes, not just those that lead to major shifts in cognitive ability.

Together, assimilation and accommodation are processes of adjustment to changes in the environment and are defined as adaptation, the continuous process of using the environment to learn. And, according to Piaget, adaptation is the most important principle of human functioning. Piaget argued that assimilation and accommodation are two important principles underlying cognitive development.

To explain his theory, Piaget used the concept of stages to describe development as

A sequence of the four following stages:

- Sensory-Motor Stage
- Preoperational stage
- Stage of Concrete Operations
- Stage of Formal Operations

2. Sensory-Motor Stage: Ages Birth through Two

The *Sensory-Motor Stage* extends from birth until approximately the age of two. During this stage senses, reflexes, and motor abilities develop rapidly. Intelligence is first displayed when reflex movements become more refined, such as when an infant will reach for a preferred toy, and will suck on a nipple and not a pacifier when hungry. Understanding of the world involves only perceptions and objects with which the infant has directly experienced. Actions discovered first by accident are repeated and applied to new situations to obtain the same results.

Toward the end of the sensory-motor stage, the ability to form primitive mental images develops as the infant acquires object permanence. Until then, an infant doesn‘t realize that objects can exist apart from him or herself.

3. Preoperational Stage: Ages Two through Seven

The child in the preoperational stage is not yet able to think logically. With the acquisition of language, the child is able to represent the world through mental images and symbols, but in this stage, these symbols depend on his own perception and his intuition. The preoperational child is completely egocentric. Although he is beginning to take greater interest in

objects and people around him, he sees them from only one point of view: his own. This stage may be the age of curiosity; pre-schoolers are always questioning and investigating new things. Since they know the world only from their limited experience, they make up explanations when they don‘t have one. It is during the preoperational stage that children’s ‘thought differs the most from adult thoughts.

4. Stage of Concrete Operations: Ages Seven through Eleven

The stage of concrete operations begins when the child is able to perform mental operations. Piaget defines a mental operation as an interiorized action, an action performed in the mind. Mental operations permit the child to think about physical actions that he or she previously performed. The preoperational child could count from one to ten, but the actual understanding that one stands for one object only appears in the stage of concrete operations.

The primary characteristic of concrete operational thought is its reversibility. The child can mentally reverse the direction of his or her thought. A child knows that something that he can add, he can also subtract. He or she can trace her route to school and then follow it back home, or picture where she has left a toy without a haphazard exploration of the entire house. A child at this stage is able to do simple mathematical operations. Operations are labelled concrete because they apply only to those objects that are physically present.

Conservation is the major acquisition of the concrete operational stage. Piaget defines conservation as the ability to see that objects or quantities remain the same despite a change in their physical appearance. Children learn to conserve such quantities as number, substance (mass), area, weight, and volume; though they may not achieve all concepts at the same time.

5. Stage of Formal Operations: Ages Eleven through Sixteen

The child in the concrete operational stage deals with the present, the here and now; the child who can use formal operational thought can think about the future, the abstract, the hypothetical.

Piaget‘s final stage coincides with the beginning of adolescence, and marks the start of abstract thought and deductive reasoning. Thought is more flexible, rational, and systematic. The individual can now conceive all the possible ways they can solve a problem, and can approach a problem from several points of view.

The adolescent can think about thoughts and -operate on operations, not just concrete objects. He or she can think about such abstract concepts as space and time. The adolescent

develops an inner value system and a sense of moral judgment. He or she now has the necessary -mental tools for living his life. Summarize of this theory that these stages unfold over time, and all children will pass through them all in order to achieve an adult level of intellectual functioning. The later stages evolve from and are built on earlier ones. They point out that the sequence of stages is fixed and unchangeable and children cannot skip a stage. They all proceed through the stages in the same order, even though they may progress through them at different rates.

Educational Implication

- Difficulty Level according to age
  e.g., World history at not at childhood should be taught
- Helpful in farming curriculum according to age mental ability of pupil.
- Mental level should be taken into consideration as explanation according to age ability to groups and understand.
- Important of Physical and social environment to create good education atmosphere.
- Teacher is aware of pupil age ability and thought process.
- No abstract concept in childhood may be in adolescence (11-15yrs.)
- No complex ideas in childhood.
- More activity based
- More important to motivation teacher must not provide spoon feeding give chance to discover.
- Theory emphasis assimilation, accommodation and equilibrium teacher should try developing that process.

KOLB - LEARNING STYLES

David Kolb published his learning styles model in 1984 from which he developed his learning style inventory. Kolb's experiential learning theory works on two levels: a four stage cycle of learning and four separate learning styles. Much of Kolb's theory is concerned with the learner's internal cognitive processes.

Kolb states that learning involves the acquisition of abstract concepts that can be applied flexibly in a range of situations. In Kolb's theory, the impetus for the development of new concepts is provided by new experiences. "Learning is the process whereby knowledge is created

through the transformation of experience". The Experiential Learning Cycle Kolb's experiential learning style theory is typically represented by a four stage learning cycle in which the learner 'touches all the bases'

- **Concrete Experience** - (a new experience of situation is encountered, or a reinterpretation of existing experience).
- **Reflective Observation** (of the new experience. Of particular importance are any inconsistencies between experience and understanding).
- **Abstract Conceptualization** (Reflection gives rise to a new idea, or a modification of an existing abstract concept).
- **Active Experimentation** (the learner applies them to the world around them to see what results).

Effective learning is seen when a person progresses through a cycle of four stages: of (1) having a concrete experience followed by (2) observation of and reflection on that experience which leads to (3) the formation of abstract concepts (analysis) and generalizations (conclusions) which are then (4) used to test hypothesis in future situations.Kolb (1974) views learning as an integrated process with each stage being mutually supportive of and feeding into the next. It is possible to enter the cycle at any stage and follow it through its logical sequence. However, effective learning only occurs when a learner is able to execute all four stages of the model. Therefore, no one stage of the cycle is an effective as a learning procedure on its own.

1. Here are brief descriptions of the four Kolb learning styles

Diverging **(feeling and watching - CE/RO)**

These people are able to look at things from different perspectives. They are sensitive. They prefer to watch rather than do, tending to gather information and use imagination to solve problems. They are best at viewing concrete situations at several different viewpoints.

Assimilating **(watching and thinking - AC/RO)**

The Assimilating learning preference is for a concise, logical approach. Ideas and concepts are more important than people. These people require good clear explanation rather

than practical opportunity. They excel at understanding wide-ranging information and organizing it in a clear logical format.

People with an assimilating learning style are less focused on people and more interested in ideas and abstract concepts. People with this style are more attracted to logically sound theories than approaches based on practical value.

Converging (doing and thinking - AC/AE)

People with a converging learning style can solve problems and will use their learning to find solutions to practical issues. They prefer technical tasks, and are less concerned with people and interpersonal aspects. People with a converging learning style are best at finding practical uses for ideas and theories. They can solve problems and make decisions by finding solutions to questions and problems.

Accommodating **(doing and feeling - CE/AE)**

The Accommodating learning style is 'hands-on', and relies on intuition rather than logic. These people use other people's analysis, and prefer to take a practical, experiential approach. They are attracted to new challenges and experiences, and to carrying out plans.

2. Educational Implications

Both Kolb's (1984) learning stages and cycle could be used by teachers to critically evaluate the learning provision typically available to students, and to develop more appropriate learning opportunities. Educators should ensure that activities are designed and carried out in ways that offer each learner the chance to engage in the manner that suits them best. Also, individuals can be helped to learn more effectively by the identification of their lesser preferred learning styles and the strengthening of these through the application of the experiential learning cycle.

Ideally, activities and material should be developed in ways that draw on abilities from each stage of the experiential learning cycle and take the students through the whole process in sequence.

SELF-ACTUALIZATION (MASLOW)

The growth of self-actualization (Maslow, 1962) refers to the need for personal growth and discovery that is present throughout a person's life. For Maslow, a person is always 'becoming' and never remains static in these terms. In self-actualization a person comes to find a meaning to life that is important to them.

As each person is unique the motivation for self-actualization leads people in different directions. For some people self-actualization can be achieved through creating works of art or literature, for others through sport, in the classroom, or within a corporate setting.

Maslow (1962) believed self-actualization could be measured through the concept of peak experiences. This occurs when a person experiences the world totally for what it is, and there are feelings of euphoria, joy and wonder.

1. Maslow offers the following description of self-actualization

"Self-actualization" represents a concept derived from Humanistic psychological theory and, specifically, from the theory created by Abraham Maslow. Self-actualization, according to Maslow, represents growth of an individual toward fulfillment of the highest needs; those for meaning in life, in particular. It was Maslow who created a psychological hierarchy of needs, the fulfillment of which theoretically leads to a culmination of fulfillment of "being values", or the needs that are on the highest level of this hierarchy, representing meaning.

Maslow's hierarchy reflects a linear pattern of growth depicted in a direct pyramidal order of ascension. Moreover, he states that self-actualizing individuals are able to resolve dichotomies such as that reflected in the ultimate contrary of free-will and determinism.

2. Maslow's hierarchy is described as follows

- Physiological needs, such as needs for food, **sleep** and air.
- Safety, or the needs for security and protection, especially those that emerge from social or political instability.

- Belonging and **love** including, the needs of deficiency and selfish taking instead of giving, and unselfish love that is based upon growth rather than deficiency.
- Needs for **self-esteem,** self-respect, and healthy, positive feelings derived from admiration And "being" needs concerning creative self-growth, engendered from fulfilment of potential and meaning in life.

As indicated, Maslow identified self-actualizing people as individuals who are highly creative, who have peak experiences, and who are able to resolve the dichotomies inherent in opposite contraries such as those constituted by "freedom and determinism", "the conscious and the **unconscious**", as well as "intentionality and a lack of intentionality." Creativity, a hallmark of a self-actualizing person.

THEORY OF A FULLY FUNCTIONING PERSON-CARL ROGERS

Rogers believed that every person could achieve their goals, wishes, and desires in life. When they did so self-actualization took place. For Rogers (1961) people who are able be self-actualize, and that is not all of us, are called fully functioning persons. This means that the person is in touch with the here and now, his or her subjective experiences and feelings, continually growing and changing. In many ways Rogers regarded the fully functioning person as an ideal and perfect man.

1. Rogers identified five characteristics of the fully functioning person

- **Open to experience**: both positive and negative emotions accepted. Negative feelings are not denied, but worked through (rather than resorting to ego defence mechanisms).
- **Existential living**: in touch with different experiences as they occur in life, avoiding prejudging and preconceptions. Being able to live and fully appreciate the present, not always looking back to the past or forward to the future..
- **Trust feelings**: feeling, instincts and gut-reactions are paid attention to and trusted. People's own decisions are the right ones and we should trust ourselves to make the right choices.

- **Creativity**: creative thinking and risk taking are features of a person's life. A person does not play safe all the time. This involves the ability to adjust and change and seek new experiences.
- **Fulfilled life**: person is happy and satisfied with life, and always looking for new challenges and experiences.

For Rogers, fully functioning people are well adjusted, well balanced and interesting to know. Often such people are high achievers in society.

2. Personality Development

Central to Rogers' personality theory is the notion of self or self-concept. This is defined as "the organized, consistent set of perceptions and beliefs about oneself". The self is the humanistic term for who we really are as a person. The self is our inner personality, and can be likened to the soul, or Freud's psyche. The self is influenced by the experiences a person has in their life, and out interpretations of those experiences. Two primary sources that influence our self-concept are childhood experiences and evaluation by others.

According to Rogers (1959), we want to feel, experience and behave in ways which are consistent with our self-image and which reflect what we would like to be like, our ideal-self. The humanistic approach states that the self is composed of concepts unique to ourselves. The self-concept includes three components:

Self-worth (or self-esteem) – what we think about ourselves. Rogers believed feelings of self-worth developed in early childhood and were formed from the interaction of the child with the mother and father.

Self-image – How we see ourselves, which is important to good psychological health. Self-image includes the influence of our body image on inner personality. At a simple level, we might perceive ourselves as a good or bad person, beautiful or ugly. Self-image has an effect on how a person thinks, feels and behaves in the world.

Ideal self – This is the person who we would like to be. It consists of our goals and ambitions in life, and is dynamic. The ideal self in childhood is not the ideal self in our teens or late twenties etc.

3. Self-Worth and Positive Regard

Carl Rogers (1951) viewed the child as having two basic needs: positive regard from other people and self-worth. How we think about ourselves, our feelings of self-worth are of fundamental importance both to psychological health and to the likelihood that we can achieve goals and ambitions in life and achieve self-actualization.

Self-worth may be seen as a continuum from very high to very low. For Carl Rogers (1959) a person who has high self-worth, that is, has confidence and positive feelings about him or herself, faces challenges in life, accepts failure and unhappiness at times, and is open with people. A person with low self-worth may avoid challenges in life, not accept that life can be painful and unhappy at times, and will be defensive and guarded with other people.

Rogers believed feelings of self-worth developed in early childhood and were formed from the interaction of the child with the mother and father. As a child grows older, interactions with significant others will affect feelings of self-worth.

Rogers believed that we need to be regarded positively by others; we need to feel valued, respected, treated with affection and loved. Positive regard is to do with how other people evaluate and judge us in social interaction.

CONCLUSION

This unit emphasises the importance of insight learning of Kohlberg, cognitive development of Bruner, Piaget's intellectual development, Learning styles of Kolb and self-actualization of Maslow. It also explains Carl Rogers theory of a fully functioning person which will speak of self or self-concept, self-worth and Ideal-self of human being.

Questions for Discussion and Reflections

1. Explain Kohlberg's stages of moral development with examples.
2. Explain Bruner's theory of concept development and it's Educational implication.
3. Describe the Maslow's hierarchy of needs and bring out its educational implication.
4. Discuss the learning style theory of Kolb.
5. Explain the different the stages of intellectual development of Piaget.

UNIT-V: THEORY OF CONSTRUCTIVISM

Objectives:

1. Understand the meaning of constructivism and the nature constructivist learners
2. Explain the pedagogical approaches to constructivism
3. Explain the nature of learning process.
4. Understand the major challenges in constructivism

INTRODUCTION

The new view of the learning process, based on researches that have emerged from the leading learning theories propounded by Vygotsky, Piaget, Bruner and Ausubel, during the late 20th century, is known as the constructive learning. In this view, learners are active, and the learning process is seen as meaning making in socially, culturally, historically and politically situated contexts.

MEANING

Learning is construction of knowledge, which is based on the idea that learning occurs when a learner actively constructs a knowledge representation in working memory. According to this view; the learner is a sense maker whereas the teacher is a cognitive guide who provides guidance and modeling an authentic task. The instructional designer's role is to create environments in which the learner interacts meaningfully with academic material, including fostering the learner's processes of selecting, organizing and integrating information.

Learning activities in constructivist settings are characterized by active engagement, inquiry, problem solving and collaboration with others rather than a dispenser of knowledge a teacher is a guide, facilitator and co-explorer, who encourage learners to question, challenge and formulate their own ideas, opinions and conclusions. Correct answers and single interpretations are de-emphasized. While there are commonly accepted attributes of constructivism, there are also different interpretations of it. In general, two broad interpretations can be found among contemporary educators: Psychological constructivism articulated by Piaget; and Social constructivism associated with Vygotsky. Two major issue shape these interpretations: (i)

education for social transformation; and (ii) the degree of influence that social context has on individual cognitive development.

DEFINITIONS

According to Cannella &Reiff, 1994, "Constructivism is an epistemology, a learning or meaning-making theory that offers an explanation of the nature of knowledge and how humans learn. It maintains that individuals create or construct their own understandings or knowledge through the interactions and activities with which they have contact".

According to Kroll &Boskey, 1996 "Knowledge is acquired through involvement with content instead of imitation or repetition".

According to Wolffe and Mcmullen, 1996, "Constructivism is primarily a theory of learning, not a theory of teaching."

THE NATURE OF CONSTRUCTIVIST LEARNER

The importance of constructivist learner:

Social constructivism -encourages culturalism the learner to arrive at their version of the truth, influenced by his or her background, culture or embedded worldview.

Learner is responsible:

It is argued that the responsibility of learning should reside increasingly with the learner. Social constructivism thus emphasizes the importance of the learner being actively involved in the learning process, unlike previous educational viewpoints where the responsibility is rested with the instructor to teach and where the learner played a passive, receptive role.

High motivation is must:

The most crucial thing regarding the nature of learner is that they should have high motivation for learning. According to Von Glaserfeld (1989), sustained motivation to learn is strongly dependent on the learner's confidence in their potential for learning.

Learner is active:

The student is the person who creates new understanding for themselves. The teacher coaches, moderates, suggests but allows the students room to experiment, ask questions, learning activities require the students' full participations. An important part of the learning process is that students reflect on, and talk about their activities. Students are also helped set their own goals and means of assessment.

Learning is reflective:

Students control their own learning process and they lead the way by reflecting on their experiences. This process makes them experts of their own learning. The teacher helps to create situations where the students feel to ask questioning and reflecting on their own processes.

Collaborative learning:

There are many reasons for collaboration which contributes to learning. The main reason in constructivism is that students learn about learning not only by themselves, but also from their peers. When students review and reflect on their learning they can pick up strategies and methods from one another.

Enquiry based learning:

The main activity in a constructivist classroom is solving problems. Students use inquiry methods to ask questions, investigate a topic, and use a variety of resources to find solutions and answers.

THE ROLE OF TEACHER IN THE CONSTRUCTIVIST CLASSROOM

Teacher encourages students' initiatives and gives freedom and encouragement.

1. The teacher asks open-ended questions and waits for responses.
2. Teacher emphasizes higher-level thinking and reasoning.
3. Students are engaged in dialogue with the teacher and with each other.
4. Teacher encourages reciprocal learning environment in the classroom.

5. Teacher emphasizes on inquiry-based learning.
6. There is emphasis on problem-based learning.
7. Cognitive apprenticeships, various methods involving collaboration or group work, co-operative learning (reciprocal questioning, Jig-saw classroom, structured controversies) are emphasized.

The Role of Teacher

1. The following are four phases in planning and implementing co-operative learning lessons.
2. Making decisions before the lesson begins,
3. Setting the lesson,
4. Monitoring and interviewing during group work; and
5. Evaluating the product and the process of group work.

The role of teacher in these phases is highlighted below:

1) Making decision before the lesson begins

The teacher is required to formulate academic and social objectives to be realized by students through the co-operative lesson. Academic objectives refer to content, subject matter and the skills to be learnt. Social objectives refer to the social interaction skills to be acquired by the students.

2) Setting lesson

The teacher explains the academic task to the members of the group. He/she also explains to them that they are to accomplish the academic task and to develop social skills too. The teacher needs to ensure that students comprehend their learning task before they begin.

3) Monitoring and intervening the during group work

While the students of working, the teacher needs to move around in the class room with a view to monitoring students progress and to intervene if necessary. if the teacher finds that the student facing difficulty in accomplishing the task, they may

intervene to provide them assistance in accomplishing to task and help them to overcome the problem.

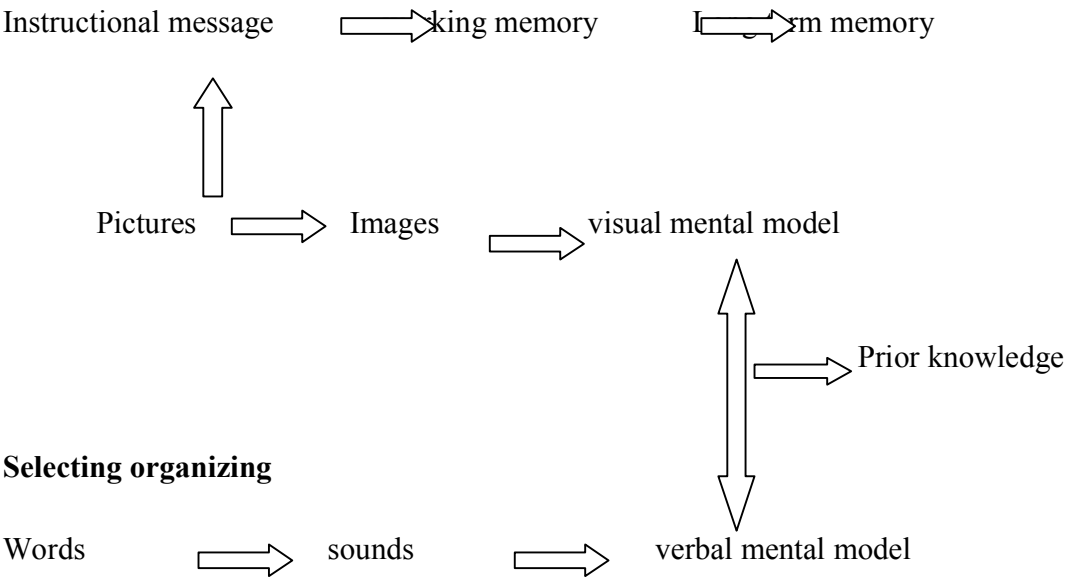
4) Evaluating the product and process of group work

The teacher needs to provide opportunities to students to evaluate the accomplishment of the academic task and the development of social skills on the part of the students.

NATURE OF LEARNING PROCESS

Constructivist theory states that knowledge is constructed by the learner in working memory. In this construction process the learner uses both incoming material from the environment and prior knowledge from long term memory. SOI model is a theory of learning that can be used to generate instructional implications.

This is called SOI model to highlight the crucial cognitive processes, S for selecting, O for organizing and I for Integrating.



The first process is the selection of relevant information for further processing. When words and pictures are presented to learn in an instructional message, the learner represents them

briefly in sensory memories, because of the limited capacity of the human information processing system.

Organizing incoming information:

The selected auditory representation is organized into a coherent verbal representation and the selected images are organized into a coherent pictorial representation. In this process the retained visual images are connected by appropriate links (such as cause and effect); likewise the retained verbal representations are also connected. This activity takes place in working memory. The outcome of this process is the construction of the coherent pictorial representation and a coherent pictorial representation.

Integrating incoming information

In this process students make one to one connections between corresponding elements of the pictorial and verbal representations they have constructed using prior knowledge.

A final step in learning process is encoding in which the mental representations constructed in working memory are stored in long-term memory for permanent retention.

COLLABORATION AMONG LEARNERS

1. There is a positive interdependence among members of a group.
2. Collaborative learning groups share common goal. They work collaborative to realize the goal.
3. A collaborative learning group does not select its group leader. Rather leadership is shared among its members.
4. The progress of the group as well of each individual is monitored and assessed. As a consequence, an individual is accountable to himself/herself and the group too.
5. In collaborative learning groups, students not only accomplish the academic task but also develop and practice social skills.
6. The teacher and / or the students evaluate the functioning of their group and formulate a plan to improve its functioning in the next collaborative lesson session.

7. In collaborative learning sessions, students help and encourage each other with a view to ensuring that all the members of the collaborative group accomplish the assigned task.
8. Students are required to maintain effective working relationship among them in the group. In the absence of such a relationship, the desired task may not be achieved.
9. Seating arrangement of the members of a group is so made that facilitates interaction among its numbers. The interaction contributes significantly to the realization of the goal of the group.

PEDAGOGICAL APPROACHES TO CONSTRUCTIVISM

Learning involves combining what we know with what was taught, or continually connecting prior knowledge with new information. This prior knowledge can facilitate, inhibit or transform learning. Research on the nature of children's science, (the ideas and experiences students bring into class with them), shows that the students hold their prior ideas tenaciously. These alternative conceptions or misconceptions grow out of students' prior experiences with the world around them and often interface considerably with teachers' attempts to foster learning. Teachers need to surface students' prior knowledge, connect to it and allow students to build from and onto their prior knowledge. In order for the students to make use of ideas taught by teachers in the way teachers intend, knowledge must the present itself as intelligible, fruitful and plausible. This is a move away from a discovery approach, where students construct knowledge solely based on their own experience to knowledge construction where students have the opportunity to test their knowledge within a social context.

The social aspect of knowledge provides clear implications for practice. Learning is seen to be an active process of knowledge construction and sense making. Beyond that, knowledge is understood as a cultural artifact of people. It is created and transformed by each individual and by groups of people. Participating in community discourse allows students to clarify, defend, elaborate, evaluate and argue over the knowledge constructed. Many teachers use cooperative learning as a route to building community discourse in their classrooms. The broader knowledge base for teaching, which included content knowledge, pedagogical content knowledge (PCK), curriculum knowledge, general pedagogy, learners and their characteristics, educational contexts and educational purposes involves the transformation of content knowledge by teachers in

different ways that allow the learners to construct knowledge during classroom practice. Teachers derive PCK from their understandings of content, their own teaching practice and their own schooling experience. As such PCK is closely intertwined with both content knowledge and pedagogical process knowledge. Research in pedagogical content knowledge reinforces the research in cognitive science. Teacher education programmers can enhance the development of PCK in student teachers by modeling and sharing teaching decisions and strategies with students. Faculty should have opportunities to demonstrate and reflect on how they use PCK in their own teaching.

Although it is difficult to separate PCK from content knowledge, a thorough and coherent understanding of content is necessary for effective PCK. Teacher education programmes can assist pre-service teachers in constructing a deep understanding of disciplinary content from a teaching perspective. A teacher education programme which balances attention to the process of learning with the content being learned can ultimately result in helping teachers be able to understand better both their content and the learning of their students. Often content is taught without any attention to process, or process is taught without a deep understanding of the content involved.

GAGNE HIERARCHY OF LEARNING OR EIGHT CLASSES OF HUMAN INTELLECTUAL SKILLS

Gagne's Hierarchy of Learning

Robert Gagne was an American educational psychologists, best known for his conditions of learning. His focus was on intentional or purposeful learning, which is a type of learning that occurs in school or specific training programmes. He believed that events in the environment influence the learning process. The theory identifies the general type of human capabilities that are learned, in terms of behavioral changes, once the learning outcomes are identified, an analysis of conditions of learning is done.

Hierarchical step Model of Learning

Gagne identified eight basic types and arranged them in the hierarchical order. According to Gagne , the higher orders of learning in the hierarchy build upon the lower levels, requiring

progressively to greater amount of previous orders for their success. The lowest four orders tend to focus on the behavioral learning and highest four on cognitive learning sample tasks function as real components of a more complex task. The underlying assumption of the hierarchy is that the basic skills are necessary to perform the most complex skill(problem solving).

Signal Learning- This is the simplest form of learning and consist Pavlov's classical conditioning response, where the individual learns to carry out a general conditioned response towards a given signal. The subject is conditioned to emit a desired response as a result of stimulus.

Stimulus Response Learning- This form of learning is also known as Skinner's operant conditioning. The individual shows a certain Response(R) to a discriminated stimulus (S).

Psychomotor Connection learning/chaining – This is a more advanced form of learning in which the subject develops the ability to connect two or more previously-learned stimulus response bonds into a linked sequence.

Verbal Association Learning – It is a form of chaining in which the links between the items being connected are verbal in nature. Verbal association is one of the important processes in the development of language skills.

Multiple Discrimination Learning – Separate associations which have been learnt are connected to form multiple discrimination. This involves developing the ability to make appropriate(different) responses to a series of similar stimuli that differ in a systematic way.

Concept Learning – It is the learning to respond to a stimulus according to abstract characteristics such as position, shape, colour and not according to the concrete physical characteristics.

Principle Learning – A principle is a chain of two or more concepts. In principle learning, one needs to associate more than one concept.

Problem solving – This is the highest level of cognitive process according to Gagne. It involves developing the ability to invent a complex rule, algorithm for the purpose of solving the problem.

CONCLUSION

Teacher education provides a multiplier effect. As the model that leads our students to understand content deeply and to view content and process as inseparable aspects of knowledge construction approaches, our students gain the perspectives and abilities to move their students to deeper understandings of content. Powerful teacher education should help students at all levels of schooling for better appreciations of the world around them. A constructivist approach shows that content and process are not dichotomous. As more teachers come to that understanding, many more students will benefit.

Questions for discussion and Reflection

1. Explain constructive approach to learning
2. Explain the characteristics of constructive approach
3. Write about the educational implications of constructive approach to learning
4. How does learning take place in constructive approach?

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