NETAJI SUBHAS OPEN UNIVERSITY

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B. Ed. Spl. Ed. (M.R./H.I./V.I.)-ODL

LEARNING, TEACHING & ASSESSMENT

A-3

B. Ed. Spl. Ed. (M. R. / H. I. / V. I)-
ODL Programme

AREA - A

A-3 : LEARNING, TEACHING AND ASSESSMENT

A COLLABORATIVE PROGRAMME OF
NETAJI SUBHAS OPEN UNIVERSITY
AND
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AREA - A ● CORE COURSE

COURSE CODE - A3

LEARNING, TEACHING AND ASSESSMENT

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The Self Instructional Material (SIM) is prepared in conformity with the B.Ed.Spl. Edn.(MR/HI/VI) - ODL Programme as prepared and circulated by the Rehabilitation Council of India, New Delhi and adopted by NSOU on and from the 2015-2017 academic session.

Dr. Ashit Baran Aich
Registrar (Actg.)

Netaji Subhas Open University

From the Vice-Chancellor's Desk

Dear Students, from this Academic Session (2015-17) the Curriculum and Course Structure of B. Ed.- Special Education have been thoroughly revised as per the stipulations which featured in the Memorandum of Understanding (MoU) between the Rehabilitation Council of India (RCI) and the National Council for Teacher Education (NCTE). The newly designed course structure and syllabus is comprehensive and futuristic has, therefore, been contextualized and adopted by NSOU from the present academic session, following the directives of the aforesaid national statutory authorities.

Consequent upon the introduction of new syllabus the revision of Self Instructional Material (SIM) becomes imperative. The new syllabus was circulated by RCI for introduction in the month of June, 2015 while the new session begins in the month of July. So the difficulties of preparing the SIMs within such a short time can easily be understood. However, the School of Education of NSOU took up the challenge and put the best minds together in preparing SIM without compromising the standard and quality of such an academic package. It required many rigorous steps before printing and circulation of the entire academic package to our dear learners. Every intervening step was meticulously and methodically followed for ensuring quality in such a time bound manner.

The SIMs are prepared by eminent subject experts and edited by the senior members of the faculty specializing in the discipline concerned. Printing of the SIMs has been done with utmost care and attention. Students are the primary beneficiaries of these materials so developed. Therefore, you must go through the contents seriously and take your queries, if any, to the Counselors during Personal Contact Programs (PCPs) for clarifications. In comparison to F2F mode, the onus is on the learners in the ODL mode. So please change your mind accordingly and shrug off your old mindset of teacher dependence and spoon feeding habits immediately.

I would further urge you to go for other Open Educational Resources (OERs) - available on websites, for better understanding and gaining comprehensive mastery over the subject. From this year NSOU is also providing ICT enabled support services to the students enrolled under this University. So, in addition to the printed SIMs, the e-contents are also provided to the students to facilitate the usage and ensure more flexibility at the user end. The other ICT based support systems will be there for the benefit of the learners.

So please make the most of it and do your best in the examinations. However, any suggestion or constructive criticism regarding the SIMs and its improvement is welcome. 1 must acknowledge the contribution of all the content writers, editors and background minds at the SoE, NSOU for their respective efforts, expertise and hard work in producing the SIMs within a very short time.

Professor (Dr.) Subha Sankar Sarkar
Vice-Chancellor, NSOU

B. Ed. Spl. Ed (M. R. / H. I. / V. I)-
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AREA - A

A-3 : LEARNING, TEACHING AND ASSESSMENT

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A-3 ❐ Learning, Teaching and Assessment

Unit- 1 ❐ Human Learning and Intelligence

Structure :

1.1 Introduction

This module highlights the concept of learning and intelligence. Through this module we would try to understand the basic concepts of learning, the frontier theories and its application in academics. Apart from learning the present module concentrates on another basic concept in Psychology, i.e., intelligence. We will discuss the definitions, characteristics, a brief history of intelligence measurement, followed by leading theories in intelligence. The module will further concentrate on another psychological construct very closely associated with intelligence, i.e., creativity. We will discuss the concept, nature and characteristics of creativity followed by implications of learning in academic settings. At the end of this module students are expected to have a clear understanding about learning and intelligence and its application in academics.

1.2 Objectives

At the end of successful completion of the module students will be able to understand the following:

— The concept and nature of learning.

— The various perspectives and theories of learning principle, with a highlight to behavioristic theories, cognitive theories and social learning theories.

— The concept and characteristics of intelligence.

— Various intelligence theories with a highlight on Spearman's two factor theory, Gardner's multiple intelligence theory and Steinberg's Triarchich intelligence theory.

— The concept, definition and characteristics of creativity. It's relationship with motivation and intelligence.

— The Implications for Classroom Teaching and Learning.

1.3 Human learning: Meaning, definition and concept formation

Learning can be defined as the process leading to relatively permanent behavioral change or potential behavioral change. In other words, as we learn, we alter the way we perceive our environment, the way we interpret the incoming stimuli, and therefore the way we interact, or behave. Learning is one of the most important activities in which humans engage. It is at the very core of the educational process, although most of what people learn occurs outside of school. For thousands of years, philosophers and psychologists have sought to understand the nature of learning, how it occurs, and how one person can influence the learning of another person through teaching and similar endeavors. Various theories of learning have been suggested, and these theories differ for a variety of reasons.

Evolving Theories of Learning

The modern psychological study of learning can be dated from the work of Hermann Ebbinghaus (1850-1909), whose well-known study of memory was published in 1885. Other early studies of learning were by Edward L. Thorndike (1874-1949), whose dissertation on problem solving was published in 1898, and Ivan Pavlov (1849- 1936), whose research on classical conditioning was begun in 1899 but first published in English in 1927. These theories focused on explaining the behavior of individuals and became known as behavioral theories. These theories use a stimulus-response framework to explain learning and dominated psychology and education for over half a century. Because behavioral theories focus on environmental factors such as reinforcement, feedback, and practice, they conceptualize learning as something that occurs from the outside in.

Behavioral theories provide very good explanations for certain kinds of learning but poor explanations for other types of learning. Operant conditioning, for example, is better than other theories at explaining the rote acquisition of information, the learning of physical and mental skills, and the development of behaviors conducive to a productive classroom (i.e., classroom management). In these situations, the focus is on performing behavioral tasks rather than developing a learner's cognitive structure or understanding. Although classical conditioning frequently is dismissed as irrelevant to human learning (Pavlov's initial research paradigm involved dogs salivating), this type of learning provides by far the best explanation of how and why people, including students, respond emotionally to a wide variety of stimuli and situations. The many types of emotional reactions acquired through classical

conditioning include: anger toward or hatred for a particular person or group, phobias to a particular subject area or to school itself, and infatuation with another person. However, they are very poor at explaining how individuals come to understand complex ideas and phenomena.

But environmental factors are not the only ones that influence learning. Serious consideration of other perspectives began to enter mainstream psychological thinking about learning during the 1960s. For example, people clearly learn by observing others, and a learner's belief about his or her ability to perform a task (i.e., self-efficacy) plays an important role in their learning. In 1963 Albert Bandura and R. H. Walters published the first formal statement of social-learning theory in their book. Social Learning and Personality Development. Social-learning theory has clear roots in behavioral theory but differs from these theories in significant ways. During the 1980s the theory became known as social-cognitive theory. Although essentially the same theory, the new name more accurately reflects the cognitive features of the theory and aids in differentiating it from behavioral theories of learning.

During the 1970s and 1980s conceptions and definitions of learning began to change dramatically. Behavioral theories gave way to cognitive theories that focused on mental activities and the understanding of complex material. An information-processing metaphor replaced the stimulus-response framework of behavioral theories. These theories emphasized that learning occurred from the inside out rather than from the outside in. During the fate 1970s John Flavell and Ann Brown each began to study metacognition—the learners' awareness of their own learning, an ability to reflect on their own thinking, and the capacity to monitor and manage their learning. During the mid 1980s the study of self-regulated learning began to emerge (Zimmerman & Schunk, 2001).

Then, especially during the later 1980s and the 1990s, these cognitive theories were challenged by theories that emphasized the importance of social interactions and the sociocultural context of learning. The work of the Russian psychologist Lev Vygotsky (1896-1934) first became available in North America and along with the work of anthropologists such as Jean Lave began to have a major influence on theories of learning. Individuals were seen as initially participating in peripheral activities of a group (known as legitimate peripheral participation) before becoming fully integrated into group activities. Apprenticeship became a metaphor for the way people learn in natural settings. The notion that people learn by observing others, first articulated in social-cognitive theory, was expanded in a new context.

The Relationship between Theory and Practice

The relationship between theories of learning and educational practices is complicated by several factors. One would think that instructional practices should be based on the best theories of learning available, but this relationship is not as straightforward as one might think. Schools and educational practices are far more likely to be based on philosophical beliefs than on empirical studies and theoretical understanding of learning. Schools are established according to different community and cultural beliefs about the world, the nature of humankind and children, locus of authority, and what should be learned. Schools also differ in their beliefs about teaching and learning, but the philosophical beliefs often come first. Every educational system and instructional program contains a theory of learning, although frequently this theory is implicit and goes unrecognized.

These philosophical and theoretical differences are formidable. Many have endured for centuries, and the debate is unlikely to end anytime soon. For example, the "factory model" of schooling dominated education in the United States for many years. This model is based on production and management procedures successful during the industrial revolution. It stands in sharp contrast to the voices of Henry David Thoreau (1817- 1862), John Dewey (1859-1952), and others who advocated discovery, social reform, and freedom as the appropriate means of education. Both perspectives are clearly evident in modern-day discussions of education and instructional practices.

1.3.1 Learning theories

1.3.1.1 Behaviourism

Behaviorism (also called the behaviorist approach) was the primary paradigm in psychology between 1920 to 1950 and is based on a number of underlying assumptions regarding methodology and behavioral analysis:

- Psychology should be seen as a science. Theories need to be supported by empirical data obtained through careful and controlled observation and measurement of behavior. Watson (1913) stated that "psychology as a behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is ... prediction and control".

- Behaviorism is primarily concerned with observable behavior, as opposed to internal events like thinking and emotion. Observable (i.e. external) behavior can be objectively and scientifically measured. Internal events, such as thinking should be explained through behavioral terms (or eliminated altogether).
- People have no free will - a person's environment determines their behaviour
- When born our mind is 'tabula rasa' (a blank slate).
- There is little difference between the learning that takes place in humans and that in other animals. Therefore, research can be carried out on animals as well as humans
- Behavior is the result of stimulus - response (i.e. all behavior, no matter how complex, can be reduced to a simple stimulus - response association). Watson described the purpose of psychology as: "To predict, given the stimulus, what reaction will take place; or, given the reaction, state what the situation or stimulus is that has caused the reaction" (1930).
- All behavior is learnt from the environment. We learn new behavior through classical or operant conditioning.

Varieties of Behaviorism

Historically, the most significant distinction between versions of behaviorism is that between Watson's original classical behaviorism, and forms of behaviorism later inspired by his work, known collectively as neobehaviorism.

In his book, Psychology as the Behaviorist Views It Watson (1913) outlines the principles of all behaviorists:

Psychology as the behaviorist views it is a purely objective experimental branch of natural science. Its theoretical goal is the prediction and control of behavior. Introspection forms no essential part of its methods, nor is the scientific value of its data dependent upon the readiness with which they lend themselves to interpretation in terms of consciousness. The behaviorist, in his efforts to get a unitary scheme of animal response, recognizes no dividing line between man and brute. The behavior of man, with all of its refinement and complexity, forms only a part of the behaviorist's total scheme of investigation.

The History of Behaviorism

- ☐ Pavlov (1897) published the results of an experiment on conditioning after originally studying digestion in dogs.
- ☐ Watson (1913) launches the behavioral school of psychology (classical conditioning), publishing an article, "Psychology as the Behaviorist Views It".
- ☐ Watson and Rayner(1920) conditioned an orphan called Albert B (aka Little Albert) to fear a white rat.
- ☐ Thorndike (1905) formalized the "Law of Effect".
- ☐ Skinner (1936) wrote "The Behavior of Organisms" and introduced the concepts of operant conditioning and shaping.
- ☐ Clark Hull's (1943) Principles of Behavior was published.
- ☐ B.F. Skinner (1948) published Walden Two, in which he described a Utopian society founded upon behaviorist principles.
- ☐ Bandura & Walters (1963) published a book called the "Social Leaning Theory and Personality development" which combines both cognitive and behavioral frameworks.
- ☐ Journal of the Experimental Analysis of Behavior (begun in 1958).
- ☐ B.F. Skinner (1971) published his book. Beyond Freedom and Dignity, where he argues that free will is an illusion.

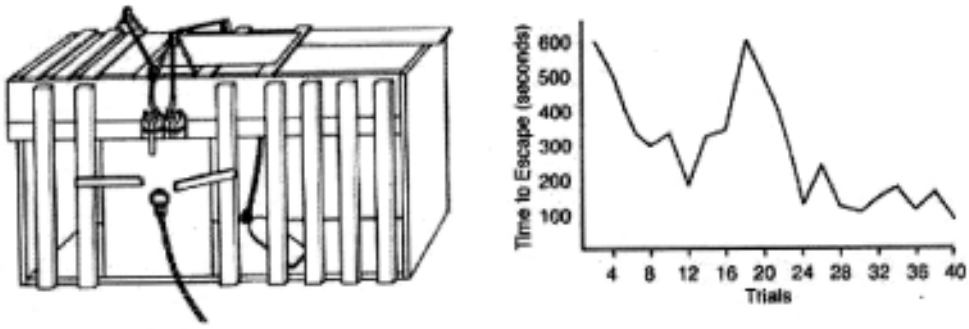
1.3.1.2 Edward Thorndike

Edward Thorndike is often referred to as the founder of modern educational psychology. He is perhaps best-known-for his famous puzzle box experiments with cats which led to the development of his law of effect. Thorndike's principle suggests that responses immediately followed by satisfaction will be more likely to occur in the future. The law of effect also suggests that behaviors followed by dissatisfaction or discomfort will become less likely to occur. Thorndike's principle also played an important role in the development of behaviorism and B.F. Skinner's operant conditioning.

Whereas classical conditioning depends on developing associations between events, operant conditioning involves learning from the consequences of our behavior. Skinner wasn't the first psychologist to study learning by consequences. Indeed,

Skinner's theory of operant conditioning is built on the ideas of Edward Thorndike.

Thorndike (1898) studied learning in animals (usually cats). He devised a classic experiment in which he used a puzzle box (see fig. 1) to empirically test the laws of learning.



Adapted from Domjan, 1993 (modified from Thorndike, 1898 [left] and Imada & Imada, 1983 [right])

Fig D : Simplified graph of the result of the puzzle box experiment.

He placed a cat in the puzzle box, which was encouraged to escape to reach a scrap of fish placed outside. Thorndike would put a cat into the box and time how long it took to escape. The cats experimented with different ways to escape the puzzle box and reach the fish.

Eventually they would stumble upon the lever which opened the cage. When it had escaped it was put in again, and once more the time it took to escape was noted. In successive trials the cats would learn that pressing the lever would have favorable consequences and they would adopt this behavior, becoming increasingly quick at pressing the lever. Edward Thorndike put forward a "LawDbfQbffect" which stated that any behavior that is followed by pleasant consequences is likely to be repeated, and any behavior followed by unpleasant consequences is likely to be stopped.

Law of Effect

Thorndike termed this the "Law of Effect," which suggested that when satisfaction follows an association, it is more likely to be repeated. If an unfavorable outcome follows an action, then it becomes less likely to be repeated.

There are two key aspects of the law of effect:

1. Behaviors immediately followed by favorable consequences are more likely to occur again. In our earlier example, being praised by a supervisor for showing

up early for work made it more likely that the behavior would be repeated.

2. Behaviors followed by unfavorable consequences are less likely to occur again. If you show up late for work and miss an important meeting, you will probably be less likely to show up late again in the future. Because you view the missed meeting as a negative outcome, the behavior is less likely to be repeated.

The Law of Effect's Influence on Behaviorism

Thorndike's discovery had a major influence on the development of behaviorism. B.F. Skinner based his theory of operant conditioning on the law of effect. Skinner even developed his own version of a puzzle box which he referred to as an operant conditioning chamber (also known as a Skinner box). In operant conditioning, behaviors that are reinforced are strengthened, while those that are punished are weakened. The law of effect clearly had a major influence on the development of behaviorism, which went on to become the dominant school of thought in psychology for much of the twentieth-century.

1.3.1.3 B. F. Skinner

Operant conditioning developed by B.F Skinner, is a way of learning by means of rewards and punishments. This type of conditioning holds that a certain behavior and a consequence, either a reward or punishment, have a connection which brings about learning. 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.

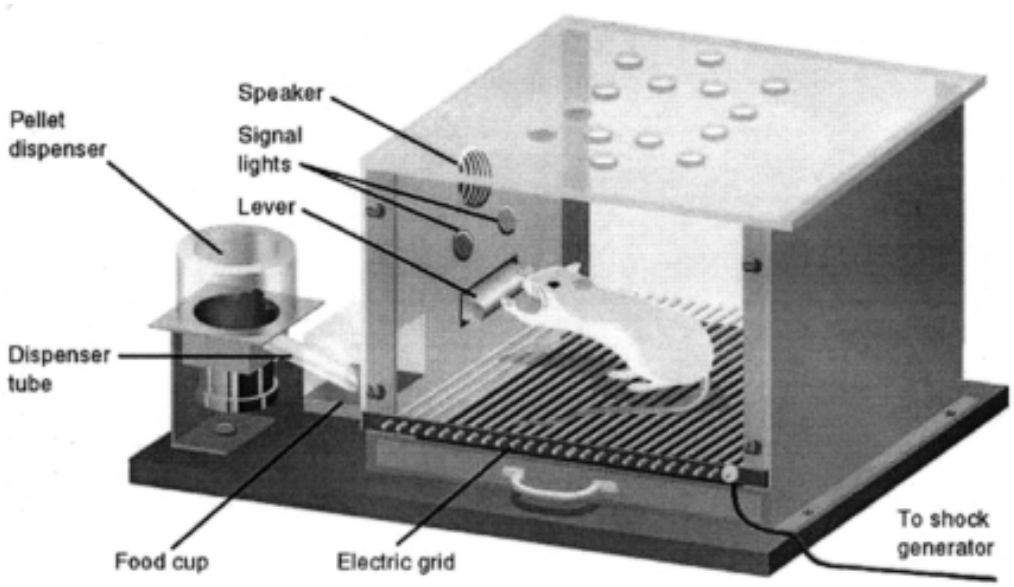
Studies on classical conditioning resulted to the emergence of other theories that may explain behavior and learning, and one of these is Operant Conditioning. Operant conditioning tries to negate the belief that internal thoughts and mere motivations would bring about learning a behavior. As a behaviorist, Skinner thought that only external causes of behavior should be considered. 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.

The term "operant" was used by Skinner in order to give us a good overview of his theory. By this term, he meant that this type of conditioning involves only external factors that affect behavior and its consequences. 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'*. 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.

A. Reinforcement

Reinforcement is a process of increasing the frequency or rate of a behavior by means of presenting a stimulus shortly after the display of behavior. The event that intensifies the likelihood of the behavior to be repeated is called a reinforcer. There are two types of reinforcer:

1. Positive reinforcers are favorable stimuli that are given after the display of behavior. Positive reinforcement strengthens the probability of a behavior by means of the addition of something.

   Example : You studied hard and got an A in your Math exam. Your mom rewards you by treating you to your favorite restaurant. After this, you study hard again and also got an A in your History exam. Your mom rewards you by going with you to see a movie you like. For your next examinations, you study hard once more.

2. Negative reinforcers, on the other hand, is the removal of the unfavorable stimuli after the display of behaviour. In negative reinforcement, the behavior or response is intensified by the removal of something.

In both positive and negative reinforcements, behavior is increased.

B. Punishment

In contrast to reinforcement, punishment is a process wherein a stimulus is presented after the display of behavior and causes the decline in the likelihood of behavior to reoccur. There are two types of punishments:

1. Positive punishment is the addition of something which causes the decrease in repeating the behavior that was displayed. Negative punishment, also known as punishment by removal, occurs when a favorable event or outcome is removed after a behavior occurs.

   Example : A child teased his sister, making her cry so loud. The mother spanked him on his buttocks because of this. The child never teased his sister again.

2. Negative Punishment, on the other hand, is the removal of something which is favorable, in order to decrease the likelihood of the behavior to reoccur.

Example : A teenager is caught cheating in an examination. His parents then forbid him to use his car and also reduce his allowance. The teenager does not cheat in his present exams anymore.

To have a better understanding of these concepts, here is a table which summarizes the characteristics of positive /negative reinforcement and positive /negative punishment:

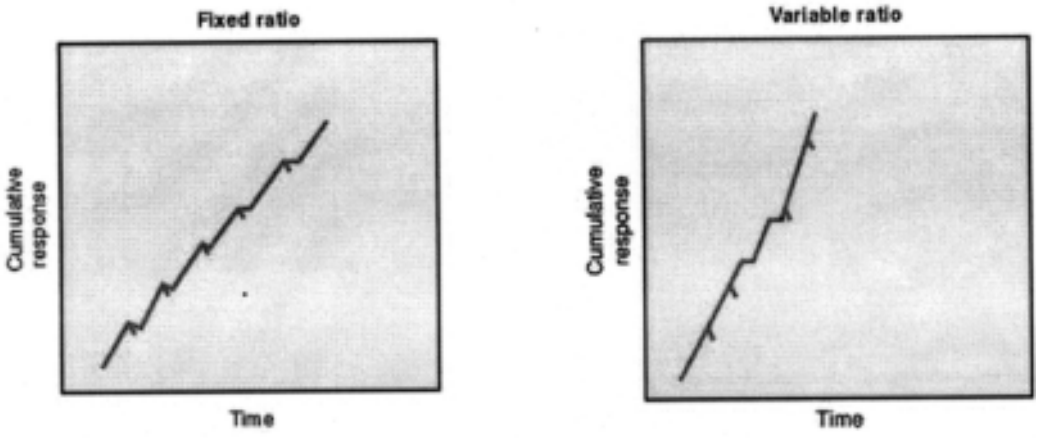
Decreases likelihood	Increases likelihood of behavior	of behavior
Addition	Positive punishment	Positive reinforcement
Removal	Negative punishment	Negative reinforcement

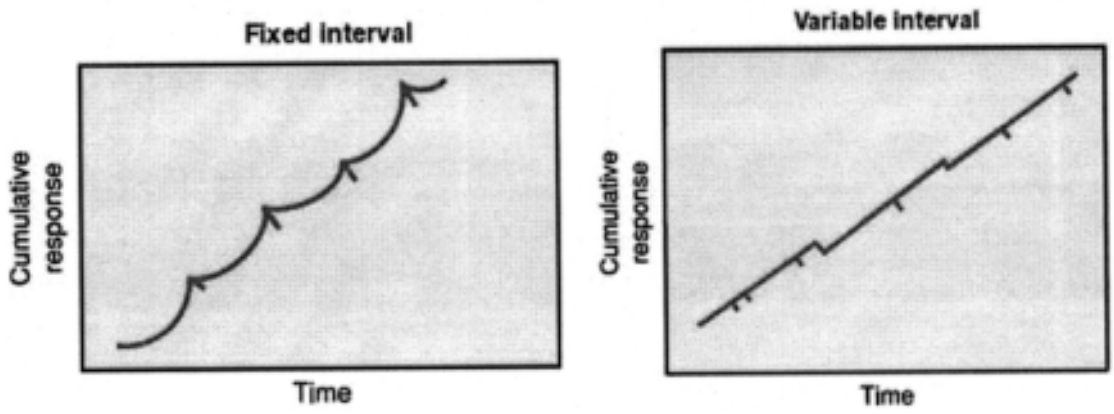
C. Schedules of Reinforcement

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 (how long would someone continue to go to work if their employer stopped paying them?). 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 on.

1. The Response Rate - The rate at which the rat pressed the lever (i.e. how hard the rat worked).
2. 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 (i.e. people will go on repeating the behavior for the longest time without reinforcement) is variable-ratio reinforcement. The type of reinforcement which has the quickest rate of extinction is continuous reinforcement.

a. 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

b. 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

c. 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 delixered (‘providing at least one le\er press has been made) then food delivery is shut off.

□ Response rate is MEDIUM

□ Extinction rate is MEDIUM

d. 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)

e. 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

D. Behavior Shaping

A further important contribution made by Skinner (1951) is the notion of behaviour shaping through successive approximation. Skinner argues that the principles of operant conditioning can be used to produce extremely complex behaviour if rewards and punishments are delivered in such a way as to encourage move an organism closer and closer to the desired behaviour each time.

In order to do this, the conditions (or contingencies) required to receive the reward should shift each time the organism moves a step closer to the desired behaviour. According to Skinner, most animal and human behaviour (including language) can be explained as a product of this type of successive approximation.

E. Behavior Modification

Behavior modification is a set of therapies / techniques based on operant conditioning (Skinner, 1938, 1953). The main principle comprises changing environmental events that are related to a person's behavior. For example, the reinforcement of desired behaviors and ignoring or punishing undesired ones.

This is not as simple as it sounds — always reinforcing desired behavior, for example, is basically bribery.

There are different types of positive reinforcements. Primary reinforcement is when a reward strengths a behavior by itself. Secondary reinforcement is when something strengthens a behavior because it leads to a primary reinforcer. Examples of behavior modification therapy include token economy and behavior shaping.

Operant Conditioning in the Classroom

In the conventional learning situation operant conditioning applies largely to issues of class and student management, rather than to learning content. It is very relevant to shaping skill performance.

A simple way to shape behavior is to provide feedback on learner performance, e.g. compliments, approval, encouragement, and affirmation. A variable-ratio produces the highest response rate for students learning a new task, whereby initially reinforcement (e.g. praise) occurs at frequent intervals, and as the performance improves reinforcement occurs less frequently, until eventually only exceptional outcomes are reinforced.

For example, if a teacher wanted to encourage students to answer questions in class they should praise them for every attempt (regardless of whether their answer is correct). Gradually the teacher will only praise the students when their answer is correct, and over time only exceptional answers will be praised.

1.3.1.4 Cognitivismn

During the 1960s, discontent with the inadequacies of behaviourism another school of thought was developing besides the behavioural thinking, the cognitive aspects. The behaviourist perspective could not easily explain why people attempt to organise and make sense of the information they learn. One example includes remembering general meanings rather than word for word information. Among learning psychologists there emerged a growing realisation that mental events or cognition could no longer be ignored.

Cognitivism is “the psychology of learning which emphasizes human cognition or intelligence as a special endowment enabling man to form hypotheses- and develop intellectually” and is also known as cognitive development. The underlying concepts of cognitivism involve how we think and gain knowledge. Cognitivism involves examining learning, memory, problem solving skills, and intelligence. Cognitive theorists may want to understand how problem solving changes throughout childhood, how cultural differences affect the way we view our own academic achievements,

language development, and much more.

Cognitive psychologists share with behaviourists the belief that the study of learning should be objective and that learning theories should be developed from the results of empirical research. However, cognitivists disagree with the behaviourists in one critical aspect. By observing the responses that individuals make to different stimulus conditions, cognitivists believe that they can draw inferences about the nature of the internal cognitive processes that produce those responses.

Many ideas and assumptions of cognitivism can be traced back to the early decades of the twentieth century. Of all theories, the theories of Jean Piaget of Switzerland are the ones that have provided psychology with very elaborated account of developmental changes in cognitive abilities.

1.3.1.5 Jean Piaget

Piaget (1936) was the first psychologist to make a systematic study of cognitive development. His contributions include a theory of child cognitive development, detailed observational studies of cognition in children, and a series of simple but ingenious tests to reveal different cognitive abilities.

Before Piaget's work, the common assumption in psychology was that children are merely less competent thinkers than adults. Piaget showed that young children think in strikingly different ways compared to adults. According to Piaget, children are born with a very basic mental structure (genetically inherited and evolved) on which all subsequent learning and knowledge is based.

Jean Piaget (1896-1980) was one of the most influential cognitive psychologist. He was a student of biology and zoology and learnt that survival requires adaptation. Therefore he viewed the development of human cognition, or intelligence, as the continual struggle of a very complex organism trying to adapt to a very complex environment.

There Are Three Basic Components To Piaget's Cognitive Theory:

A. Schemas

B. Adaptation processes that enable the transition from one stage to another (equilibrium, assimilation).

C. Stages of Development:

- □ sensorimotor
- □ preoperational
- □ concrete operational
- □ formal operational

According to Piaget's theory, human development can be outlined in terms of functions and cognitive structures. The functions are inborn biological processes that are identical for everyone and stay unchanged throughout our lives. The purpose of these functions is to construct internal cognitive structures. The structures, in contrast, changes repeatedly as the child grows.

A. Schemas

Piaget & Cook (1952) defined a schema as '*cohesive, repeatable action sequence possessing component actions that are tightly interconnected and governed by a core meaning'*. In more simple terms Piaget called the schema the basic building block of intelligent behavior - a way of organizing knowledge. Indeed, it is useful to think of schemas as "units" of knowledge, each relating to one aspect of the world, including objects, actions and abstract (i.e. theoretical) Concepts.

The schemas Piaget described tend to be simpler than this - especially those used by infants. He described how - as a child gets older - his or her schemas become more numerous and elaborate.

Piaget believed that newborn babies have a small number of innate schemas - even before they have had much opportunity to experience the world. These neonatal schemas are the cognitive structures underlying innate reflexes.

B. Adaptation

Adaptation refers to the tendency of the organism to fit with its environment in ways that promote survival. It is composed of three terms; *assimilation, accommodation* and *equilibration.*

Assimilation is the tendency to understand new experience in terms of existing knowledge. Whenever we come across something new, we try to make sense of it, built upon our existing cognitive structures.

Accommodation occurs when the new information is too complex to be integrated into the existing structure - this means that, cognitive structures change in response to new experiences.

Equilibration is the force which moves development along. Piaget believed that cognitive development did not progress at a steady rate, but rather in leaps and bounds. Equilibrium occurs when a child's schemas can deal with most new information through assimilation. However, an unpleasant state of disequilibrium occurs when new information cannot be fitted into existing schemas (assimilation).

Once the new information is acquired the process of assimilation with the new schema will continue until the next time we need to make an adjustment to it.

Example of Assimilation

A 2 year old child sees a man who is bald on top of his head and has long frizzy hair on the sides. To his father's horror, the toddler shouts "Clown, clown" (Siegler, DeLoache. & Eisenberg, 2003).

Example of Accommodation

In the "clown" incident, the boy's father explained to his son that the man was not a clown and that even though his hair was like a clown's, wearing a funny costume and doing silly things to make people laugh.

With this new knowledge, the boy was able to change his schema of "clown" and make this idea fit better to a standard concept of "clown".

C. Stages of Development

Piaget did many experiments on children's way of thinking and concluded that human beings go through several distinct stages of cognitive development. Each stage involves the acquisition of new skills and rest upon the successful completion of the preceding one.

The first stage is the **sensorimotor,** (0-2year). Until about four months of age, the infant can not differentiate itself from the environment. Gradually the child learns to distinguish people from objects and that both have an existence independent of their immediate perception. This stage draws it name, sensorimotor, from that the child learns mainly by touching objects, manipulating them and physically exploring the environment. By the end of this stage the child understands that its environment has distinctive and stable properties.

The next stage is called the **operational (2years-7years)**. This is the stage when the child acquires a mastery of a language and becomes able to use words to represent objects and images in a symbolic fashion. Piaget terms this stage pre-operational because children are not yet able to use their developing mental capabilities systematically. At this stage children are egocentric, which means that the child has the tendency to interpret the world exclusively with its own position. The child does not understand, for an example, that others see things and objects from a different perspective from their own. During this phase of development the children have no general understanding of categories of thought that adults take for granted, ideas such as causality, speed, weight or number.

The third stage is the **concrete operational period** (7years-11 years). During this period children master abstract, logical notions. They are able to handle ideas such as causality without much difficulty, and they are fit to carry out the mathematical operations of multiplying, dividing and subtracting. By this stage children are much less egocentric.

The fourth stage is called the **formal operational period** (11years+). During adolescence, the developing child becomes able to comprehend highly abstract and hypothetical concepts. When faced with a problem, children at this stage should be able to review all possible ways of solving it and go through them theoretically in order to reach a solution.

According to Piaget, the first three stages of development are general, but not all adults come to the formal operational stage. The development of formal operational thought relies in part on the process of schooling. Adults of limited educational achievement tend to remain to think in more concrete terms and retain large traces of egocentrism.

Classroom Implication of Piaget's Work

The educational interest of Piaget's work lies firstly in this procedure he used to make educationists aware of the child's thought processes and the conditions under which intellectual structures are established at different ages.

There are four principles that are most often cited in Piaget's theory regarding to education. The first is the importance of **readiness**. This principal follows from his emphasis on assimilation. Experience, educational or otherwise, does not simply happen to a child; rather it must always be assimilated to current cognitive structure. A new experience can only be of any value if the child can make sense of it. Teaching that is far away the child's level is unlikely to be useful.

The second principle concerns the **motivation** for cognitive activity. Educational content that is either to advanced or too simple is unlikely to be interesting. The educational subject has to be slightly beyond the current level of the child so that it provides experience familiar enough to assimilate however challenging enough to provoke disequilibrium.

The third is the **awareness** of what level the child has reached and the information of what it can be expected at that level and what not. Piaget's studies often identify steps and sequences through which particular content domains are mastered. It is therefore possible not only to determine were the child is but also to know the natural next steps for development.

The final principle is **more functional**. It concerns Piaget's emphasis on intelligence as an action. In his view education should be build on the child's natural curiosity and natural tendency to act on the world in order to understand it. Knowledge is most meaningful when children construct it themselves rather than having it imposed upon them.

The experience in acquiring a new knowledge through action allows two different kinds of knowledge to develop: the physical experience and the logico-mathematical experience. Physical experience produces knowledge of the properties of the objects

acted upon. Logico-mathematical experience results in knowledge, not of the objects, but of the actions themselves and their results.

From physical experience, one would gain knowledge of the weight of objects; or the fact that, other things being equal, weight increases as volume increases, and so on. When speaking of logico-mathematical experience the point is that even the highest forms abstract reasoning have their origin in action.

The aim for education, according to Piaget, is to make individuals who are critical, creative and inventive discoverers. So the major part of the child's learning relies on active experimentation and discovery. The active classroom has been associated with the term progressive teaching, where pupils are in active role, learning predominantly by discovery techniques, with emphasis on creative expression. Subject matter tends to be combined, with the teacher performing as a guide to educational experiences and encouraging cooperative work. External rewards and punishments are seen as being unimportant, and there is not so much concern with traditional academic standards and testing (Spencer, 1991).

As a biologist Piaget tended to look at development more from the physical change and the readiness for each stage to develop any further. Another perspective in the cognitive movement was from those who saw the connection between the environment and the child development in a constructive way, and Jerome Burner's ideas are those that are well known.

Evaluation of Piaget's Theory

The influence of Piaget's ideas in developmental psychology has been enormous. He changed how people viewed the child's world and their methods of studying children. He was an inspiration to many who came after and took up his ideas. Piaget's ideas have generated a huge amount of research which has increased our understanding of cognitive development. His ideas have been of practical use in understanding and communicating with children, particularly in the field of education (re: Discovery Learning).

Some years ago, Jean Piaget's theory of cognitive development during childhood was regarded as the major paradigm in which to understand the complex procedure of mental progression through different levels of thinking and understanding. One of the most important contributions that Piaget made was to establish the fact that the cognitive processes of young children are not simply immature versions of that of an adult, but that they have their very own rules. Piaget's theory and in fact his

findings have been widely challenged later on. Never the less, Piaget's ideas still maintain a vital influence in both general psychology and contemporary education.

1.3.1.6 Kohlberg

Lawrence Kohlberg (1966, 1969) suggested that children had made a cognitive judgement about their gender identity before they select same sex models for sex typed behaviors.

Lawrence Kohlberg's Cognitive Development Theory :

Despite the focus on cognition and internal self-regulation in Bandura's more recent work, many theorists argue that there are more fundamental cognitive processes that need to be taken into account when analysing children's gender development. In particular, researchers have suggested that children's concepts of themselves as male or female play a critical role in encouraging children to identify and endorse gender roles. This notion was first set out at the same time as the early social learning approaches to gender development.

In Kohlberg's view, boys think "I am a boy, therefore I want to do boy things, therefore the opportunity to do boy things (and to gain approval for doing them) is rewarding". His emphasis, then, is on gender role development as being self-socialised; certainly, there is plenty of information about gender roles in the social environment, but it is the child who actively seeks out, organises, and then behaves in accordance with that information. This contrasts markedly with the view of the child as behaving in a gender-typed 'way simply because he or she is rewarded - or sees someone else being rewarded - for it.

A major implication of this perspective is that children's appreciation of- and adherence to -gender roles is dependent on their gender identity, their sense of being male or female. Kohlberg, and other proponents of this approach, argued that children develop a sense of gender identity in a sequence of distinct stages, an idea that owes a great deal to Jean Piaget's influential work on cognitive development. Piaget had argued that children's logical thought could be seen to develop through a sequence of discrete stages, each qualitatively different from the others. Kohlberg connected this development with growth in children's sense of gender identity.The Kohlbergian sequence of gender identity development involves three stages.

Kohlberg 's stages of gender development

Stage 1: Gender labeling

Children can identify themselves and other people as girls or boys (mummies or daddies). However, gender is not seen as stable over time or across changes in superficial physical characteristics (e.g. length of hair, clothes).

Stage 2: Gender stability

Children recognise that gender is stable over time: boys will grow up to be daddies, and girls will grow up to be mummies. However, the unchanging nature of gender - that it remains the same regardless of changes in superficial appearance or activity choice — is not yet appreciated.

Stage 3: Gender consistency

Children have a full appreciation of the permanence of gender over time and across situations.

By the age of around three years, in the gender labelling stage, children become able to label themselves and others as boys or girls accurately. It is not for another couple of years, however, that children are thought to enter the gender stability stage and appreciate that this classification would remain stable over time (i.e. a boy would grow up to be a daddy, and a girl would grow up to be a mummy).

This understanding was thought to develop in parallel with classic Piagetian changes in children's appreciation of conservation (e.g. understanding that the volume of water in a beaker would remain the same after the water is poured into a beaker of different dimensions). Most importantly, Kohlberg argued that the "child's gender identity can provide a stable organizer of the child's psychosexual attitudes only when he is categorically certain of its unchangeability" (1966). Thus, the mature understanding of gender constancy was considered critically important for the gender-typing process.

Kohlberg's cognitive-developmental theory left the opportunity to further research in cognitive development perspective of children.

Evaluation

The first issue with this theory is quite easy to get your head around; it is that the theory is descriptive rather than explanative. This means that the theory tells you what happens but not why.

Another issue is that it may well be that children are at these stages earlier, but because of limits in their language skills they are not able to verbalise this. Therefore

it could be less of a theory of gender development and more a theory of the ability to talk about different concepts of gender.

And a final evaluative comment is that it takes a very broad approach. Not all children have the same understanding of gender and it doesn't account for how gender changes over time.

For example, 50 years ago childcare would be primarily the job of women, but nowadays it would seem odd if a father didn't get involved in childcare.

1.3.1.7 Social Constructivism

Social constructivism maintains that human development is socially situated and knowledge is constructed through interaction with others. It is a sociological theory of knowledge that applies the general philosophical constructivism into the social. The concept has a long history in sociological and philosophical thought, but the term has been coined by Peter L. Berger and Thomas Luckmann with their book *The Social Construction of Reality.*

Assumptions of Social Constructivism

Social constructivism is based on specific assumptions about reality, knowledge, and learning. To understand and apply models of instruction that are rooted in the perspectives of social constructivists, it is important to know the premises that underlie them.

Reality: Social constructivists believe that reality is constructed through human activity. Members of a society together invent the properties of the world (Kukla, 2000). For the social construct}vist, reality cannot be discovered: it does not exist prior to its social invention.

Knowledge: To social constructivists, knowledge is also a human product, and is socially and culturally constructed (Ernest, 1999; Gredler, 1997; Prawat & Floden, 1994). Individuals create meaning through their interactions with each other and with the environment they live in.

Learning: Social constructivists view learning as a social process. It does not take place only within an individual, nor is it a passive development of behaviors that are shaped by external forces (McMahon, 1997). Meaningful learning occurs when individuals are engaged in social activities.

1.3.1.8 Lev Vygotsky

The work of Lev Vygotsky (1896-1934) has become the foundation of much research and theory in cognitive development over the past several decades, particularly of what has become known as Social Development Theory.

Vygotsky's theories stress the fundamental role of social interaction in the development of cognition Vygotsky (1978), as he believed strongly that community plays a central role in the process of "making meaning." Unlike Piaget's notion that children's' development must necessarily precede their learning, Vygotsky argued, "learning is a necessary and universal aspect of the process of developing culturally organized, specifically human psychological function" (1978). In other words, social learning tends to precede (i.e. come before) development.

Vygotsky has developed a sociocultural approach to cognitive development. He developed his theories at around the same time as Jean Piaget was starting to develop his ideas (1920's and 30's), but he died at the age of 38 and so his theories are incomplete - although some of his writings are still being translated from Russian.

No single principle (such as Piaget's equilibration) can account for development. Individual development cannot be understood without reference to the social and cultural context within which it is embedded, Higher mental processes in the individual have their origin in social processes.

Vygotsky's theory differs from that of Piaget in a number of important ways:

1. Vygotsky places more emphasis on culture affecting/shaping cognitive development - this contradicts Piaget's view of universal stages and content of development. (Vygotsky does not refer to stages in the way that Piaget does).

(i) Hence Vygotsky assumes cognitive development varies across cultures, whereas Piaget states cognitive development is mostly universal across cultures.

2. Vygotsky places considerably more emphasis on social factors contributing to cognitive development (Piaget is criticized for underestimating this).

(i) *Vygotsky states cognitive development stems from social interactions from guided learning within the zone of proximal development as children and their partners co-construct knowledge. In contrast Piaget maintains that cognitive development stems largely from independent explorations in which children construct knowledge of their own.*

(ii) For Vygotsky, the environment in which children grow up will influence how they think and what they think about.

3. Vygotsky places more (and different) emphasis on the role of language in cognitive development (again Piaget is criticized for lack of emphasis on this). For Vygotsky, cognitive development results from an internalization of language.

According to Piaget, language depends on thought for its development (i.e. thought comes before language). For Vygotsky, thought and language are initially separate systems from the beginning of life, merging at around three years of age, producing verbal thought (inner speech).

4. According to Vygotsky adults are an important source of cognitive development. Adults transmit their culture's tools of intellectual adaptation that children internalize. In contrast Piaget emphasizes the importance of peers as peer interaction promotes social perspective taking.

Effects of Culture : Tools of intellectual adaptation

Like Piaget, Vygotsky claimed that infants are born with the basic materials/ abilities for intellectual development. Lev Vygotsky refers to Elementary Mental Functions -

Attention, Sensation, Perception, Memory, Eventually, through interaction within the sociocultural environment, these are developed into more sophisticated and effective mental processes/strategies which he refers to as Higher Mental Functions.

Vygotsky refers to tools of intellectual adaptation - these allow children to use the basic mental functions more effectively/adaptively, and these are culturally determined (e.g. memory mnemonics, mind maps).

Vygotsky therefore sees cognitive functions, even those carried out alone, as affected by the beliefs, values and tools of intellectual adaptation of the culture in which a person develops and therefore socio-culturally determined. The tools of intellectual adaptation therefore vary from culture to culture - as in the memory example.

In order to gain an understanding of Vygotsky's theories on cognitive development, one must understand two of the main principles of Vygotsky's work: the More Knowledgeable Other (MKO) and the Zone of Proximal Development (ZPD).

A. More Knowledgeable Other

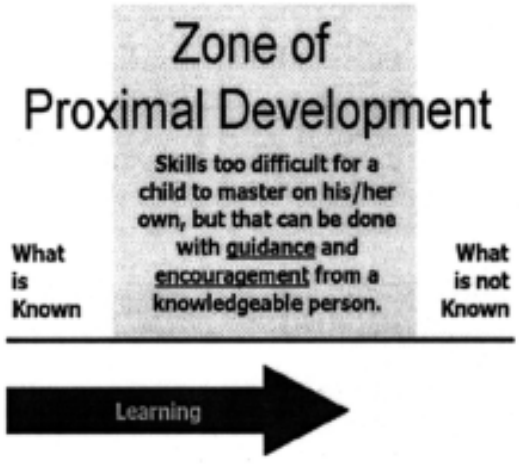
The more knowledgeable other (MKO) is somewhat self-explanatory; it refers to someone who has a better understanding or a higher ability level than the learner, with respect to a particular task, process, or concept.

Although the implication is that the MKO is a teacher or an older adult, this is not necessarily the case. Many times, a child's peers or an adult's children may be the individuals with more knowledge or experience. For example, who is more likely to know more about the newest teenage music groups, how to win at the most recent PlayStation game, or how to correctly perform the newest dance craze - a child or their parents?

In fact, the MKO need not be a person at all. Some companies, to support employees in their learning process, are now using electronic performance support systems. Electronic tutors have also been used in educational settings to facilitate and guide students through the learning process. The key to MKOs is that they must have (or be programmed with) more knowledge about the topic being learned than the learner does.

B. Zone of Proximal Development

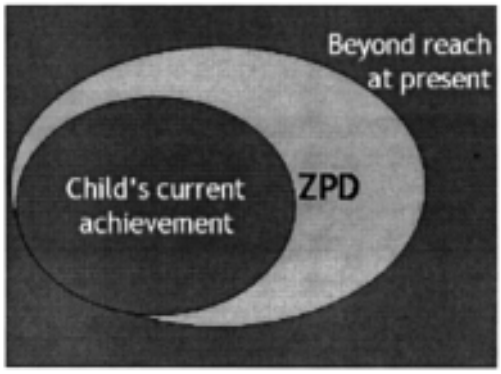
The concept of the More Knowledgeable Other is integrally related to the second important principle of Vygotsky's work, the Zone of Proximal Development. This is an important concept that relates to the difference between what a child can achieve independently and what a child can achieve with guidance and encouragement from a skilled partner.



For example, the child could not solve the jigsaw puzzle (in the example above) by itself and would have taken a long time to do so (if at all), but was able to solve

it following interaction with the father, and has developed competence at this skill that will be applied to future jigsaws.

Vygotsky (1978) sees the Zone of Proximal Development as the area where the most sensitive instruction or guidance should be given - allowing the child to develop skills they will then use on their own - developing higher mental functions. Vygotsky also views interaction with peers as an effective way of developing skills and strategies. He suggests that teachers use cooperative learning exercises where less competent children develop with help from more skillful peers - within the zone of proximal development.



Evidence for Vygotsky and the ZPD

Freund (1990) conducted a study in which children had to decide which items of furniture should be placed in particular areas of a dolls house. Some children were allowed to play with their mother in a similar situation before they attempted it alone (zone of proximal development) whilst others were allowed to work on this by themselves (Piaget's discovery learning).

Freund found that those who had previously worked with their mother (ZPD) showed greatest improvement compared with their first attempt at the task. The conclusion being that guided learning within the ZPD led to greater understanding/ performance than working alone (discovery learning).

Vygotsky and Language

Vygotsky believed that language develops from social interactions, for communication purposes. Vygotsky viewed language as man's greatest tool, a means for communicating with the outside world.

According to Vygotsky (1962) language plays 2 critical roles in cognitive development :

I: It is the main means by which adults transmit information to children.

2: Language itself becomes a very powerful tool of intellectual adaptation.

Vygotsky (1987) differentiates between three forms of language: social speech which is external communication used to talk to others (typical from the age of two); private speech (typical from the age of three) which is directed to the self and serves an intellectual function; and finally private speech goes underground, diminishing in audibility as it takes on a self-regulating function and is transformed into silent inner speech (typical from the age of seven).

Perhaps the main criticism of Vygotsky's work concerns the assumption that it is relevant to all cultures. Rogoff (1990) dismisses the idea that Vygotsky's ideas are culturally universal and instead states the concept of scaffolding - which is heavily dependent on verbal instruction - may not be equally useful in all cultures for all types of learning. Indeed, in some instances observation and practice may be more effective ways of learning certain skills.

1.3.1.9 Albert Bandura

The social learning theory proposed by Albert Bandura has become perhaps the most influential theory of learning and development. While rooted in many of the basic concepts of traditional learning theory, Bandura believed that direct reinforcement could not account for all types of learning. While the behavioral theories of learning suggested that all learning was the result of associations formed by conditioning, reinforcement, and punishment, Bandura's social learning theory proposed that learning can also occur simply by observing the actions of others.

His theory added a social element, arguing that people can learn new information and behaviors by watching other people. Known as observational learning (or modeling), this type of learning can be used to explain a wide variety of behaviors. Bandura explained:

"Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behavior is learned observationally through modeling: from observing others one forms an idea of how new behaviors are performed, and on later occasions this coded information serves as a guide for action." Albert Bandura, Social Eearning Theory, 1977.

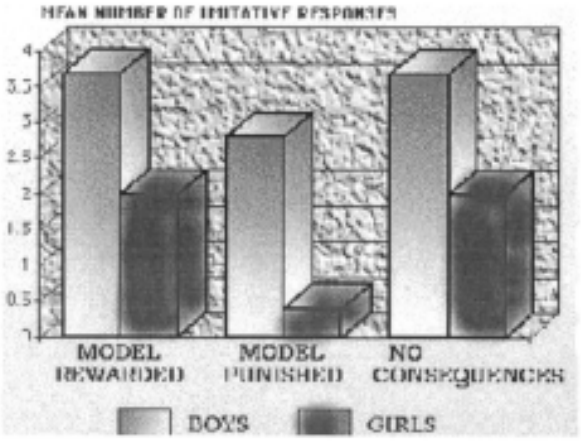
Albert Bandura combines both behavioral and cognitive philosophies to form this theory of modeling, or observational learning. He sees the human personality as an interaction between the environment and a person's psychological processes. Bandura says that humans are able to control their behavior through a process known as self regulation. This process involves three steps:

l) Self observation Humans look at themselves and their behavior and keep track of their actions.

2) Judgment Humans compare these observations with standards. These standards can be rules set by society, or standards that the individual sets for him or herself.

3) Self responserif, after judging himself or herself, the person does well in comparison with the set standards, he or she will give him or her- self a rewarding self-response. If the person does poorly he or she then administers a punishing self-response to him or herself,

Self regulation has been incorporated into self control therapy which has been very successful in dealing with problems such as smoking.



Dealing with modeling is his study with Bobo Dwed a video to children in which an adult beat vided the children into three groups, and each The first video showed the adult being rewarded for his behavior, the second video showed the adult being punished for his behavior, and the third video showed no consequences for the behavior. He then studied the differences between how male children and female children reacted to this video in regard to whether they imitated the observed behavior or not. The results are shown to the left. This graph represents the number of imitative responses by males and females after observing one of the three different

videos. The results show that males in all cases imitated the viewed behavior more so than females.

In social learning theory Albert Bandura (1977) agrees with the behaviourist learning theories of classical conditioning and operant conditioning. However, he adds two important ideas:

A. Mediating processes occur between stimuli & responses.

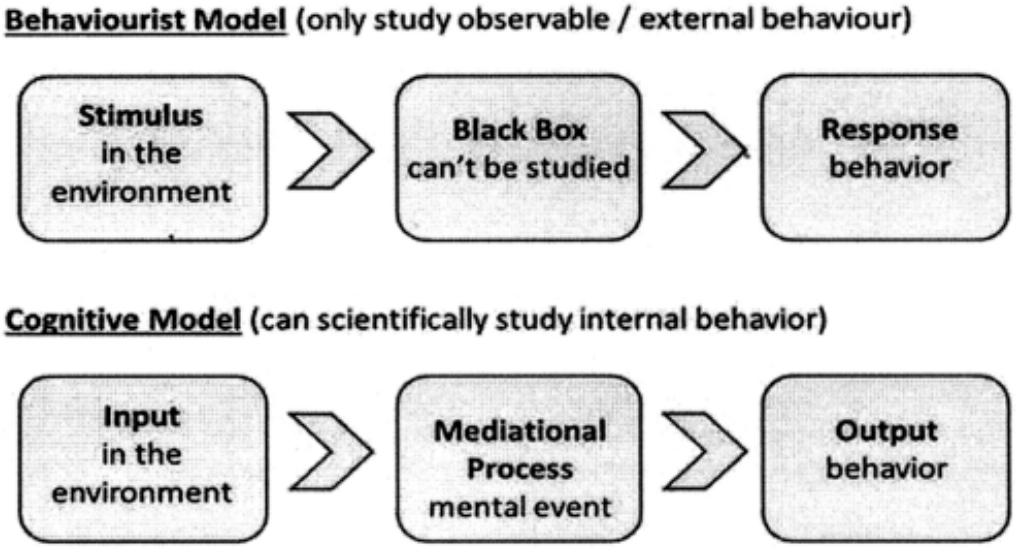
B. Behavior is learned from the environment through the process of observational learning.

A. Mediational Processes

SLT is often described as the 'bridge' between traditional learning theory (ie. behaviourism) and the cognitive approach. This is because it focuses on how mental (cognitive) factors are involved in learning.

Unlike Skinner, Bandura (1977) believes that humans are active information processors and think about the relationship between their behavior and its consequences. Observational learning could not occur unless cognitive processes were at work. These mental factors mediate (i.e. intervene) in the learning process to determine whether a new response is acquired.

Therefore, individuals do not automatically observe the behaviour of a model and imitate it. There is some thought prior to imitation and this consideration is called mediational processes. This occurs between observing the behaviour (stimulus) and imitating it or not (response).



There are four mediational processes proposed by Bandura:

- Attention: The extent to which we are exposed/notice the behaviour. For a behaviour to be imitated it has to grab our attention. We observe many behaviours on a daily basis and many of these are not noteworthy. Attention is therefore extremely important in whether a behaviour has an influence in others imitating it.
- **Retention :** How well the behaviour is remembered. The behaviour may be noticed, but is it not always remembered which obviously prevents imitation. It is important therefore that a memory of the behaviour is formed to be performed later by the observer. Much of social learning is not immediate so this process is especially vital in those cases. Even if the behaviour is reproduced shortly after seeing it, there needs to be a memory to refer to.
- **Reproduction :** This is the ability to perform the behavior that the model has just demonstrated. We see much behaviour on a daily basis that we would like to be able to imitate but that this not always possible. We are limited by our physical ability and for that reason, even if we wish to reproduce the behaviour, we cannot. This influences our decisions whether to try and imitate it or not. Imagine the scenario of a 90-year-old-lady who struggles to walk watching Dancing on Ice. She may appreciate that the skill is a desirable one, but she will not attempt to imitate it because she physically cannot do it.
- **Motivation :** The will to perform the behaviour. The rewards and punishment that follow a behaviour will be considered by the observer. If the perceived rewards outweighs the perceived costs (if there are any) then the behaviour will be more likely to be imitated by the observer. If the vicarious reinforcement is not seen to be important enough to the observer then they will not imitate the behaviour.

B. Observational Learning

Children observe the people around them behaving in various ways. This is illustrated during the famous Bo bo doll experiment (Bandura, 1961). Individuals that are observed are called models. In society, children are surrounded by many influential models, such as parents within the family, characters on children's TV, friends within their peer group and teachers at school. These models provide examples of behavior to observe and imitate, e.g. masculine and feminine, pro and anti-social etc.

Children pay attention to some of these people (models) and encode their behavior. At a later time they may imitate (i.e. copy) the behavior they have observed. They may do this regardless of whether the behavior is 'gender appropriate' or not, but there are a number of processes that make it more likely that a child will reproduce the behavior that its society deems appropriate for its sex.

First, the child is more likely to attend to and imitate those people it perceives as similar to itself. Consequently, it is more likely to imitate behavior modeled by people of the same sex.

Second, the people around the child will respond to the behavior it imitates with either reinforcement or punishment. If a child imitates a model's behavior and the consequences are rewarding, the child is likely to continue performing the behavior. If parent sees a little girl consoling her teddy bear and says "what a kind girl you are", this is rewarding for the child and makes it more likely that she will repeat the behavior. Her behavior has been reinforced (i.e. strengthened).

Reinforcement can be external or internal and can be positive or negative. If a child wants approval from parents or peers, this approval is an external reinforcement, but feeling happy about being approved of is an internal reinforcement. A child will behave in a way which it believes will earn approval because it desires approval.

Positive (or negative) reinforcement will have little impact if the reinforcement offered externally does not match with an individual's needs. Reinforcement can be positive or negative, but the important factor is that it will usually lead to a change in a person's behavior.

Third, the child will also take into account of what happens to other people when deciding whether or not to copy someone's actions. A person learns by observing the consequences of another person's (i.e. models) behaviour e.g. a younger sister observing an older sister being rewarded for a particular behaviour is more likely to repeat that behaviour herself. This is known as vicarious reinforcement.

This relates to attachment to specific models that possess qualities seen as rewarding. Children will have a number of models with whom they identify. These may be people in their immediate world, such as parents or older siblings, or could be fantasy characters or people in the media. The motivation to identify with a particular model is that they have a quality which the individual would like to possess.

Identification occurs with another person (the model) and involves taking on (or adopting) observed behaviors, values, beliefs and attitudes of the person with whom you are identifying.

The term identification as used by Social Learning Theory is similar to the Freudian term related to the Oedipus complex. For example, they both involve internalizing or adopting another person's behavior. However, during the Oedipus complex the child can only identify with the same sex parent, whereas with Social Learning Theory the person (child or adult) can potentially identify with any other person.

Identification is different to imitation as it may involve a number of behaviors being adopted, whereas imitation usually involves copying a single behavior.

Critical Evaluation

The social learning approach takes thought processes into account and acknowledges the role that they play in deciding if a behaviour is to be imitated or not. As such, SLT provides a more comprehensive explanation of human learning by recognising the role of mediational processes.

In addition to influencing other psychologists, Bandura's social learning theory has had important implication in the field of education. Today, both teachers and parents recognize the importance of modeling appropriate behaviors. Other classroom strategies such as encouraging children and building self-efficacy are also rooted in social learning theory.

1.4 Intelligence

1.4.1 Concept and Definition

Intelligence has been an important and controversial topic throughout psychology's history. Despite the substantial interest in the subject, there is still considerable disagreement about what exactly constitutes intelligence. In addition to questions of exactly how to define intelligence, the debate continues today about whether accurate measurements are even possible.

At various points throughout recent history, researchers have proposed some different definitions of intelligence. While these definitions can vary considerably from one theorist to the next, current conceptualizations tend to suggest that intelligence involves the ability to:

Learn. The acquisition, retention, and use of knowledge is an important component of intelligence.

Recognize problems. To put knowledge to use, people must first be able to identify possible problems in the environment that need to be addressed.

Solve problems. People must then be able to take what they have learned to come up with a useful solution to a problem they have noticed in the world around them.

Intelligence involves some different mental abilities including logic, reasoning, problem-solving and planning. While the subject of intelligence is one of the largest and most heavily researched, it is also one of the topics that generate the greatest controversy.

Intelligence, the dictionary says, is "The capacity to acquire and apply knowledge." A number of definitions have been evolved by psychologists according to their own concept of the term intelligence. Being dissatisfied by the number of definitions and their interpretation, Boring defined "Intelligence is what intelligence tests test." All the definitions have been systematized by Vernon and Freeman. Let us examine the classification of the definitions of intelligence done by these psychologists. Vernon classified all the definitions under three broad categories such as biological, psychological and operational. Freeman, though, classified all definitions of intelligence into three categories but his approach differs from Vernon.

1.4.2 Vernon's Classification

1) *Biological approach.* This category of definitions emphasizes the adaptive nature of human beings. Man is one kind of organism among a million on earth who adapts to his environment. If we interpret psychology as a biological science then there is little doubt that we must also interpret intelligence as adaptation to environment. Any other view of intelligence is superficial. This is the most far reaching and general view of intelligence. According to Vernon, this idea of intelligence is the most fundamental of all. Intelligence according to this approach is the capacity to adapt relatively in new situations of life. But if we critically examine the biological concept of intelligence we find that many great men to whom one could hardly deny an assessment of exceptional intelligence (Pascal, Kafka and numerous academic experts) have been spectacularly ill-adapted in their social and physical environment. The biological concept of intelligence is not of great use from practical point of view in the study of individual differences within a culture.

(2) *Psychological approach.* The second category of definitions, according to Vernon, is psychological. Few of the definitions advanced by experts contained a clear commitment about the relative effects of hereditary and environmental influences in the development of intelligence. C. Burt, an English psychologist, defined intelligence as innate general cognitive ability. Since scores on existing intelligence tests have often been shown to be susceptible to environmental influences, a consequence of this definition is that intelligence as defined differs from intelligence as measured by tests.

(3) *Operational approach.* The third category of definitions of intelligence is operational. Operational definitions are important to understand the concept of intelligence in clear and definite terms. Scientific terms are defined not in isolation, as in a dictionary but by stating the observable conditions under which a sentence containing the term is true or false, instead of defining the word by itself. Such definitions are called for they frequently state what must be done in order to make certain observations. For instance, in order to determine a I child's I.Q., we must first administer a test of specific kind. Then 1 observe his performance, on the test and finally make certain calculations and decisions. All of these conditions define the meaning of l.Q. as it appears in the sentence. Ramu has an I.O. of 115.

It would certainly be of great advantage to have an operational definition of intelligence that everyone would accept for scientific work I and would distinguish it from vague popular conceptions of the term.

Freeman's Classification

(1) *Adjustment or adaptation ability.* The definitions of this category lay emphasis on the adjustment ability of an individual to his environment The individual is thought intelligent in proportion to his ability to adjust to new situations and problems of life. The person who is intelligent has no difficulty in the adjustment. He adjusts in an effective way and can vary his behaviour according to the situation. A person who is less intelligent is rigid and has less responses to make in the process of social interaction. The definition, given by Stern, comes under this category. He defined intelligence as a general capacity of an individual, consciously to adjust his thinking to new environment.

(2) *Ability to learn.* The definitions of this category emphasize the importance of an individual's ability to learn. Learning ability is an index of one's intelligence. Buckingham says, "Intelligence is the learning ability."

(3) *Ability to carry on abstract thinking.* This category of definitions lays more emphasis on the effective use of concepts and symbols in dealing with situations, especially, presenting a problem to be solved through the use of verbal and numerical symbols. Terman, defining intelligence, says, "An individual is intelligent in proportion as he is able to carry on abstract thinking."

Two comprehensive definitions:

D. Wechsler "Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment."

Stoddard (1943) presented comprehensive description "Intelligence is the ability to undertake activities that are characterized by (1) difficulty, (2) complexity, (3) abstraction, (4) economy, (5) adaptiveness to a goal, (6) social value and (7) the emergence of originals, and to maintain such activities under conditions that demand a concentration of energy and a resistance to emotional forces."

1.4.3 Types of Intelligence

E.L. Thorndike has classified intelligence into three categories which are as follows :

(a) Concrete intelligence.

(b) Abstract intelligence.

(c) Social intelligence.

(a) *Concrete Intelligence.* Concrete intelligence means intelligence in relation to concrete materials. It is the ability of an individual to comprehend actual situations and react to them adequately. The concrete intelligence is evident from various activities of daily life. This kind of intelligence is measured by performance tests and picture tests in which the individual has to manipulate concrete materials.

(b) Abstract intelligence. It is the ability to respond to words, numbers and letters etc. All tests of intelligence which require manipulation of symbols are tests of abstract intelligence. Abstract intelligence is required in the ordinary academic subjects in schools, such as reading, writing and history and so on. The highest level of abs tract intelligence is manifested in the thought of philosophers and in ease of mathematical formula.

(c) *Social intelligence.* Social intelligence means ability of an individual to react to social situations of daily life. Social intelligence would not include the

feelings or emotions aroused in us by other, but merely our ability to understand others and to react in such a way towards them that the ends desired should be attained. High social intelligence is possessed by those who are able to handle people well. Adequate adjustment in social situations is the index of social intelligence.

Measuring Intelligence

The term "intelligence quotient," or IQ, was first coined in the early twentieth century by a German psychologist named William Stern. Psychologist Alfred Binet developed the very first intelligence tests to help the French government identify schoolchildren who needed extra academic assistance. Binet was the first to introduce the concept of mental age or a set of abilities that children of a certain age possess.

Since that time, intelligence testing has emerged as a widely used tool that has led to the development of many other tests of skill and aptitude.

Eventually, Binet and colleague Theodore Simon came up with a test that not only distinguished bet\\een fast and slou learners but also between children of different age groups as well (Binet & Simon, 1916). They noticed that the fast learners seemed to give answers to questions that older children might give, whereas the slow learners gave answers that were more typical of a younger child. Binet decided that the key element to be tested was a child's *mental age,* or the average age at which children could successfully answer a particular level of questions.

STANFORD BINET AND Q Terman (1916), a researcher at Stanford University, adopted German psychologist William Stern's method for comparing mental age and *chronological age* (number of years since birth) for use with the translated and revised Binet test. Stern's (1912) formula was to divide the mental age (MA) by the chronological age (CA) and multiply the result by 100 to get rid of any decimal points. The resulting score is called an intelligence (quotient, or IQ. A quotient is a number that results from dividing one number by another.)

IQ-MA/CAX 100

Today, the Stanford-Binet Intelligence Scales, Fifth Edition (SB5) (Roid, 2003) is often used by educators to make decisions about the placement of students into special educational programs. Most children are given this test at around die second grade, or age 7 or 8. See Table 8.3 for descriptions of some items from the SB5.

THE WECHSLER TESTS David Wechsler (1981, 1989, 1991) was the first to devise a series of tests designed for specific age groups (also given to an individual,

not just groups, as is the Stanford-Binet test). Originally dissatisfied with the fact that die Stanford- Binet was designed for children but being administered to adults, he developed an IQ test specifically for adults. He later designed tests specifically for older school-age children and preschool children as well as for those in the early grades. The Wechlser Adult Intelligence Scale (WAIS-IV), Wechsler Intelligence Scale for Children (WISC-IV), and the Wechsler Preschool and Primary Scale of Intelligence (WPPSI-III) are the three versions of this test, and are now used more frequently than the Stanford-Binet. These tests differ from the Stanford-Binet in that they each have a verbal and a performance (nonverbal) scale, as well as providing an overall score of intelligence. The verbal component scale tests vocabulary, comprehension, and general knowledge, whereas the performance component scale tests such skills as arranging blocks to match a pattern, identifying missing parts in pictures, and putting pictures representing a story in order.

1.4.4 Theories of Intelligence

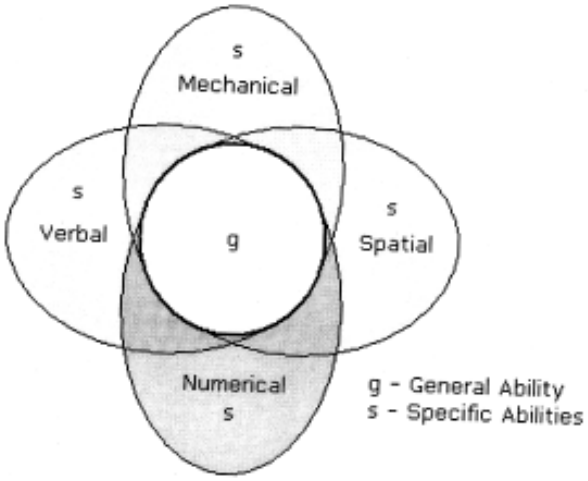
Different researchers have proposed a variety of theories to explain the nature of intelligence. The following are some of the major theories of intelligence that have emerged during the last 100 years.

Theories of intelligence, as is the case with most scientific theories, have evolved through a succession of models. Four of the most influential paradigms have been psychological measurement, also known as psychometrics; cognitive psychology, which concerns itself with the processes by which the mind functions; cognitivism and contextual ism, a combined approach that studies the interaction between the environment and mental processes; and biological science, which considers the neural bases of intelligence.

1.4.4.1 Charles Spearman - General Intelligence

One of the earliest of the psychometric theories came from the British psychologist Charles E. Spearman (1863-1945), who published his first major article on intelligence in 1904. He noticed what may seem obvious now—that people who did well on one mental-ability test tended to do well on others, while people who performed poorly on one of them also tended to perform poorly on others. To identify the underlying sources of these performance differences, Spearman devised factor analysis, a statistical technique that examines patterns of individual differences in test scores. He concluded that just two kinds of factors underlie all individual differences in test scores. The

first and more important factor, which he labeled the "general factor," org, pervades performance on all tasks requiring intelligence. In other words, regardless of the task, if it requires intelligence, it requires *g*. The second factor is specifically related to each particular test. For example, when someone takes a test of arithmetical reasoning, his performance on the test requires a general factor that is common to all tests *(g)* and a specific factor that is related to whatever mental operations are required for mathematical reasoning as distinct from other kinds of thinking. But what, exactly, isg? After all, giving something a name is not the same as understanding what it is. Spearman did not know exactly what the general factor was, but he proposed in 1927 that it might be something like "mental energy."



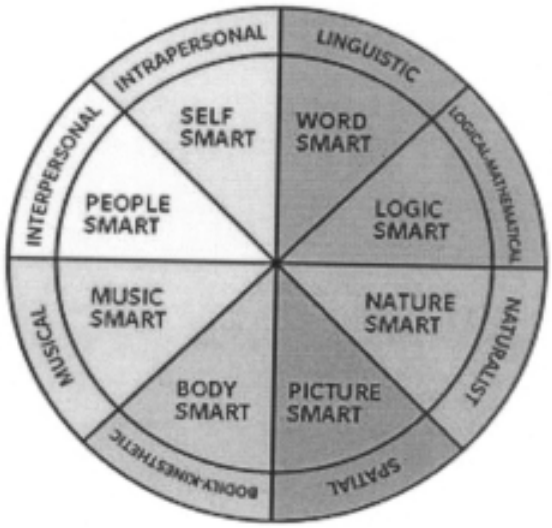
As time progressed, Spearman increasingly argued that *g* was not, from a psychological point of view, a single ability but composed of two very different abilities which normally worked closely together. These he called "eductive" ability and "reproductive" ability. The former term comes from the Latin root "educere" - which means to "draw out" and thus refers to the ability to make meaning out of confusion. He claimed that to understand these different abilities "in their trenchant contrast, their ubiquitous cooperation, and their genetic interlinkage" would, for the study of "individual differences - and even cognition itself - be "the very beginning of wisdom."

Despite Spearman arguing that *g* was what emerged from a large battery of tests, i.e., that it i was not measured perfectly by any single test, the fact that g-theory suggested that much of ability could be captured in a single factor, and his suggestion that "the eduction of relations and correlates" underlay this general factor led to the quest for tests of this general ability. Raven's Progressive Matrices might be regarded as one of these although Raven himself clearly stated that his tests should not be regarded as **"intelligence"** tests.

1.4.4.2 Howard Gardner Multiple Intelligences

One of the more recent ideas to emerge is Howard Gardner's theory of multiple intelligences. Instead of focusing on the analysis of test scores, Gardner proposed that numerical expressions of human intelligence are not a full and accurate depiction of people's abilities. His theory describes eight distinct intelligences based on skills and abilities that are valued in different cultures. The eight intelligences Gardner described are:

- ☐ Visual-spatial Intelligence
- ☐ Verbal-linguistic Intelligence
- ☐ Bodily-kinesthetic Intelligence
- ☐ Logical-mathematical Intelligence
- ☐ Interpersonal Intelligence
- ☐ Musical Intelligence
- ☐ Intrapersonal Intelligence
- ☐ Naturalistic Intelligence



Howard Gardner initially formulated a list of seven intelligences. His listing was provisional. The first two have been typically valued in schools; the next three are usually associated with the arts; and the final two are what Howard Gardner called 'personal intelligences' (Gardner 1999).

Linguistic Intelligence involves sensitivity to spoken and written language, the ability to learn languages, and the capacity to use language to accomplish certain goals. This intelligence includes the ability to effectively use language to express oneself rhetorically or poetically; and language as a means to remember information. Writers, poets, lawyers and speakers are among those that Howard Gardner sees as having high linguistic intelligence.

Logical mathematical intelligence consists of the capacity to analyze problems logically, carry out mathematical operations, and investigate issues scientifically. In Howard Gardner's words, it entails the ability to detect patterns, reason deductively and think logically. This intelligence is most often associated with scientific and mathematical thinking.

Musical intelligence involves skill in the performance, composition, and appreciation of musical patterns. It encompasses the capacity to recognize and compose musical pitches, tones, and rhythms. According to Howard Gardner musical intelligence runs in an almost structural parallel to linguistic intelligence.

Bodily kinesthetic intelligence entails the potential of using one's whole body or parts of the body to solve problems. It is the ability to use mental abilities to coordinate bodily movements. Howard Gardner sees mental and physical activity as related.

Spatial intelligence involves the potential to recognize and use the patterns of wide space and more confined areas.

Interpersonal intelligence is concerned with the capacity to understand the intentions, motivations and desires of other peopJe. It allows people to work effectively with others. Educators, salespeople, religious and political leaders and counsellors all need a well-developed interpersonal intelligence.

Intrapersonal intelligence entails the capacity to understand oneself, to appreciate one's feelings, fears and motivations. In Howard Gardner's view it involves having an effective working model of ourselves, and to be able to use such information to regulate our lives.

In Frames of Mind Howard Gardner treated the personal intelligences 'as a piece'. Because of their close association in most cultures, they are often linked together. However, he still argues that it makes sense to think of two forms of personal intelligence. Gardner claimed that the seven intelligences rarely operate independently. They are used at the same time and tend to complement each other as people develop skills or solve problems.

In essence Howard Gardner argued that he was making two essential claims about multiple intelligences. That :

First, the theory is an account of human cognition in its fullness. The intelligences provided 'a new definition of human nature, cognitively speaking' (Gardner 1999). Human beings are organisms who possess a basic set of intelligences.

Second, people have a unique blend of intelligences. Howard Gardner argues that the big challenge facing the deployment of human resources 'is how to best take advantage of the uniqueness conferred on us as a species exhibiting several intelligences'.

These intelligences, according to Howard Gardner, are amoral — they can be put to constructive or destructive use.

Impact of multiple intelligences on educators

Howard Gardner's theory of multiple intelligences has not been readily accepted within academic psychology. However, it has met with a strongly positive response from many educators. It has been embraced by a range of educational theorists and, significantly, applied by teachers and policymakers to the problems of schooling. A number of schools in North America have looked to structure curricula according to the intelligences, and to design classrooms and even whole schools to reflect the understandings that Howard Gardner develops. The theory can also be found in use within pre-school, higher, vocational and adult education initiatives.

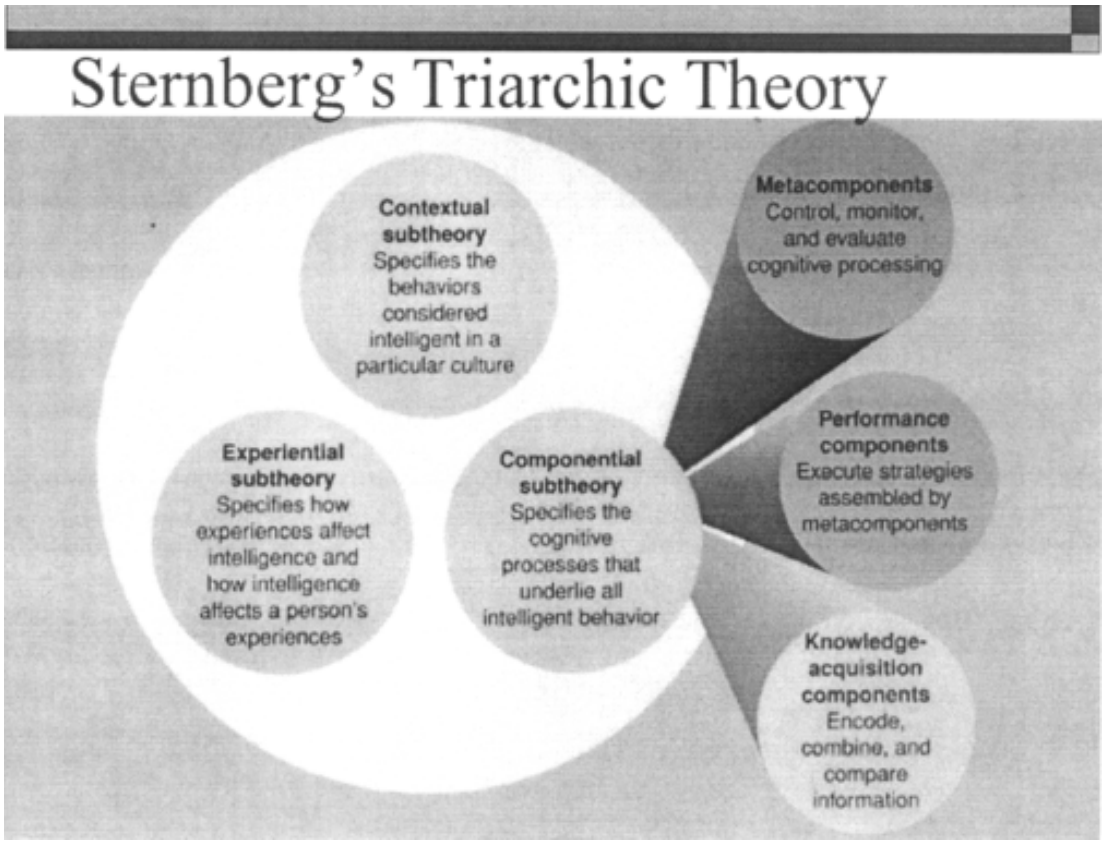
1.4.4.3 Robert Sternberg Triarchic Theory of Intelligence

Psychologist Robert Sternberg defined intelligence as "mental activity directed toward purposive adaptation to, selection and shaping of, real-world environments relevant to one's life." While he agreed with Gardner that intelligence is much broader than a single, general ability, he instead suggested some of Gardner's intelligences are better viewed as individual talents. Sternberg proposed what he referred to as 'successful intelligence' comprised of three different factors:

- Analytical Intelligence: This component refers to problem-solving abilities.
- Creative Intelligence: This aspect of intelligence involves the capacity to deal with new situations using past experiences and current skills.
- Practical intelligence: This element refers to the ability to adapt to a changing environment.

Sternberg's Triarchic Theory of Human Intelligence (1977, 1985, 1995) subsumes both Spearman's g and underlying information processing components. His triarchic theory includes three facets or subtheories:

- Analytical (componential)
- Creative (experiential)
- Practical (contextual)



Sternberg's theory builds on his earlier componential approach to reasoning. His theory is mostly based on observing Yale graduate students. Steinberg believes that if intelligence is properly defined & measured it will translate to real-life success.

Sternberg's Triarchic Theory is an important effort to synthesize the various theories of intelligence.

Analytical (componential) Facet (or Subtheory)

Analytical Intelligence similar to the standard psychometric definition of intelligence e.g. as measured by Academic problem solving: analogies and puzzles, and corresponds to his earlier componential intelligence. Sternberg considers this reflects how an individual relates to his internal world.

Sternberg believes that Analytical Intelligence (Academic problem-solving skills) is based on the joint operations of metacomponents and performance components and knowledge acquisition components of intelligence.

1.5 Creativity: Concept, Definition and Characteristics.

Creativity is the act of turning new and imaginative ideas into reality. Creativity is characterized by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. Creativity involves two processes: thinking, then producing. If you have ideas, but don't act on them, you are imaginative but not creative.

"Creativity is the process of bringing something new into being. Creativity requires passion and commitment. It brings to our awareness what was previously hidden and points to new life. The experience is one of heightened consciousness: ecstasy. " - Rollo May, The Courage to Create.

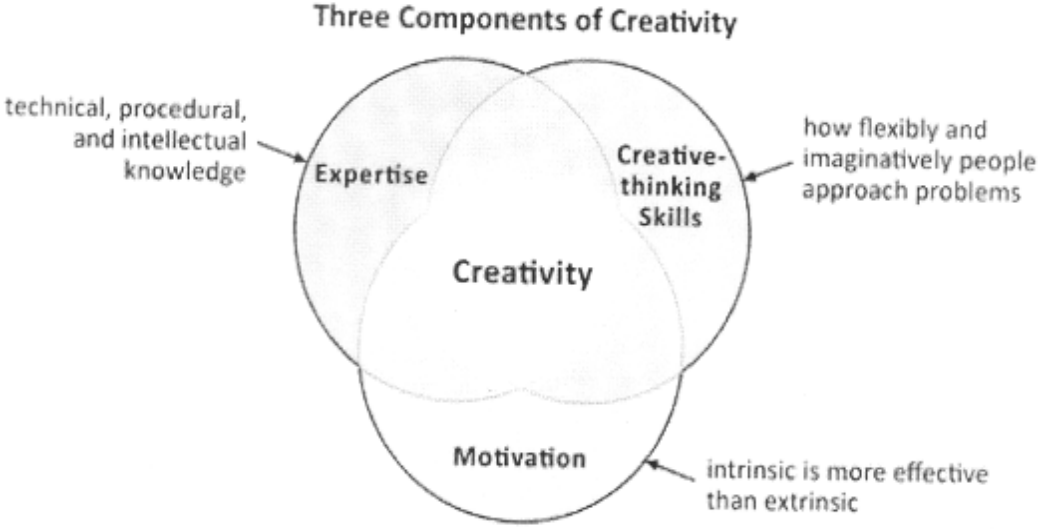
"A product is creative when it is (a) novel and (b) appropriate. A novel product is original not predictable. The bigger the concept, and the more the product stimulates further work and ideas, the more the product is creative. "—Sternberg & Lubart, Defying the Crowd.

Creativity is the development of ideas and products that are both original and valuable. It is essential for something to be both original and valuable to be creative. It is possible that something could be very original but not valuable. We probably would not view something as creative if it is not valuable. For example, a person could write a book that was just random sentences. This may be highly original, but it would not be of value to anyone.

Examples of creativity include a scientist who develops a theory to explain human behavior, a musician who writes original songs that are enjoyed by many people, and a writer who writes a book that provide new ideas for fundraising.

Not all creative people are alike, which makes defining creativity a challenge and assessing it a monumental undertaking. The traditional psychological definition of creativity includes two parts: originality and functionality. "You can't be creative

unless you come up with something that hasn't been done before," - Dean Keith Simonton, "The idea also has to work, or be adaptive or be functional in some way; it has to meet some criteria of usefulness."



Motivation and intelligence

There are other components of creativity—domain-relevant skills, quality processes and intrinsic task motivation-according to a componential theory of creativity developed by Teresa Amabile. But Amabile points out that environmental factor such as freedom, support and positive challenges also play a key role in fostering creativity. Another important factor in creativity is intelligence, but contrary to beliefs at the turn of the 20th century, it is not the only factor, says Simonton.

In the 1920s, psychologist Louis Terman began looking at the relationship between intelligence and creativity. In a longitudinal sample of intelligent children, not all ended up developing their creative abilities, he found. That's when psychologists started to realize more than intelligence was required—also critical is having an ability to see things from a different perspective, Simonton says.

"You need an IQ of around 140 to learn enough physics to be truly creative in it," Simonton says. "But once you have that minimal IQ, there's still something else that must be there for a person to be truly creative."

The personality creativity connection

Big-C creativity

The field of the Psychology of Creativity applies empirical, scientific rigor to the study of this type of pioneering creativity, or what research psychologists call "big-C' creativity.

Convergent vs. Divergent thinking

Convergent thinking refers to intelligence rated by IQ tests, or tests that measure rational, problem-solving abilities. Convergent thought is analytical, logical and controlled. It means one "right answer" for a given problem. Standardized tests and intelligence tests measure convergent thinking.

Divergent thinking refers to the ability to come up with many solutions or ideas for problems that don't have one solution. It refers to associative and intuitive thought, and thinking that requires flexibility. It's the ability to ask simple questions to develop unique and novel ideas.

Theories of creativity

Up until the middle of the last century, creativity wasn't widely discussed amont psychologists, let alone studied. However, in a speech to the American Psychological Association in 1950, psychologist J.P. Guilford proclaimed that creativity had been overlooked as a research topic, and challenged researchers to study it empirically—to come up with a plausible way of describing how creativity actually occurs.

The six ''P's'' of Creativity

To develop theories on creativity, research psychologists focus their emphases and investigations on one or more central aspects of creativity, which they have labeled the six "P's."

Process. Process refers to how creative processes take place cognitively, or more specifically what types of processing occur during creative thought and invention.

Product. Research psychologists rate and quantify the creativity of a particular creative output, such as a Harry Potter book, a painting by Pablo Picasso, or a new product, such as Facebook. Scientists rate the ingenuity and novelty of a product against more traditional, conventional, and less creative outputs.

Personality. Early research tended to focus heavily on personality traits, as certain traits apply to creative individuals across domains, such as mathematics, science, business, or the arts. Most theories today regard personality traits as only one aspect or influence of creative behavior.

Place. Place is also referred to as "press" for pressure, or high-demand environments vs. low-demand environments. Creativity thrives in less controlled environments, where there is "low" pressure for quick results, and managers, parents or superiors reward differences rather than behaviors that fit in with conventional ways of doing things.

Persuasion. Creativity persuades or initiates change, so those highly creative individuals with innovative ideas and products must have the ability to convince others in a field of expertise of the output's true novelty.

Potential. Potential research focuses on potential creative outputs, or the as-of-yet unfulfilled creative potential of individuals. This "P" focuses more research on everyday creativity, and most specifically on the potential of children and the educational supports needed for creativity to flourish.

1.6 Implications for Classroom Teaching and Learning

Pedagogical theory and practice have seen a great number of advancements over the past half-century, but perhaps the most significant of these is the recognition by educators that the teaching-learning process must be seen as a single transaction. In other words, if something has not been learned, then it has not been taught. Educators have taken ownership of the process and, in today's world, they accept that their teaching has not reached its objective, and they have not met their obligation, if all students have not learned the material at hand.

This approach to teaching and learning has forced educators to focus on how individual students learn. It has always been recognized, of course, that sensorial experience and activity are the fundamentals of anyone's learning process, whether child or adult, and effective teachers have always provided the opportunity for these in their lesson plans. It is only in recent years, however, that educational theory has focused on learning styles as a way of helping students who are not achieving normal learning objectives. If some children do not succeed well by one approach, then perhaps they will do better by another.

Educators normally refer to fundamental learning styles as auditory, visual, and tactile. It would be a mistake, however, to imagine that any individual student relies on a single style of learning. The reality is that humans learn through a variety of processes and all of them involve fundamental sensorial and motor components. What the teacher must realize is that some students require more sensorial or motor engagement than others in order to learn effectively.

Auditory instruction is by far the weakest in terms of reaching teaching learning objectives. Even adults have difficulty listening to a speaker for any length of time. Most children are unable to listen and learn effectively without other stimuli, and a child who can succeed well through listening alone, an auditory learner, is a rare child indeed.

Visual perception is an essential component of the learning process for most people. Though blind persons, for example, are able to learn much about the world through other means, the formation of certain concepts are impossible for them. Educators over the past three centuries have considered visual stimulation to be the essence of concept formation, and it is for this reason that classroom teachers have always considered visual aids to be a basic necessity in any lesson.

Listening and seeing, then, are vital requirements in the learning process for most children and adults. But it is the hands on approach that characterizes effective teaching in today's classroom. Though some students are identified as auditory or visual learners, the reality is that all children, and probably all adults, learn most effectively through practical involvement in the task at hand. Effective teachers everywhere understand the importance of providing tactile experience for their students. Certainly, some students may succeed quite well without a hands-on approach, but it is undeniable that learning is enhanced for all of them when an opportunity for tactility is added to auditory and visual instruction.

Learning styles are an important consideration to any teacher who is determined to succeed. Today's teachers are well trained and they know that they have not succeeded as long as some students have not reached the objectives of their teaching. A knowledge and understanding of the learning process, the importance of sensorial stimuli and activity, and a recognition of the significance of learning styles, will enable today's educators to succeed where perhaps their predecessors did not.

Implications for teaching practice of some key ideas from learning theories

1. Learning is a process of active construction.

Learning is the interaction between what students know, the new information they encounter, and the activities they engage in as they learn. Students construct their own understanding through experience, interactions with content and others, and reflection.

Teaching Implication

Provide opportunities for students to connect with your content in a variety of meaningful ways by using cooperative learning, interactive lectures, engaging assignments, hands-on lab/field experiences, and other active learning strategies.

2. Students' prior knowledge is an Important determinant of what they will learn

Students do not come to your class as a blank slate. They use what they already know about a topic to interpret new information. When students cannot relate new material to what they already know, they tend to memorize—learning for the test—-rather than developing any real understanding of the content.

Teaching Implication

Learn about your students' experiences, preconceptions, or misconceptions by using pretests, background knowledge probes, and written or oral activities designed to reveal students' thinking about the topic.

3. Organizing information into a conceptual frame work helps students remember and use knowledge.

Students must learn factual information, understand these facts and ideas in the context of a conceptual framework, and organize knowledge in ways that facilitate retrieval and application in order to develop competence in a new topic.

Teaching Implication

Support students by using concept maps, flowcharts, outlines, comparison tables, etc., to make the structure of the knowledge clear.

4. Learning is a social phenomenon.

Students learn with greater understanding when they share ideas through conversation, debate, and negotiation. Explaining a concept to one's peers puts knowledge to a public test where it can be examined, reshaped, and clarified.

Teaching Implication

Use Cooperative learning strategies, long-term group projects, class discussions, and group activities to support the social side of learning.

5. Learning is context specific.

It is often difficult for students to use what they learn in class in new contexts (i.e., other classes, the workplace, or their personal lives).

Teaching Implication

Use problem-based learning, simulations or cases, and service learning to create learning environments similar to the real world.

6. Studentes' metacognitive skills (thinking about thinking) are important to their learning.

   Many students utilize few learning strategies and have a limited awareness of their thinking process.

   Teaching Implication

Help students become more metacognitively aware by modeling your thinking as you solve a problem, develop an argument, or analyze written work in front of the class. Teach metacognitive strategies, such as setting goals, making predictions, and checking for consistency. Focus attention on metacognition by having students write in a learning journal or develop explanations of their problem-solving processes.

Principles of Learning and Their Implications

Principle : Effort Produces Achievement

For a long time individuals have operated on the belief that inherited intelligence mainly determines academic achievement. It is now clear that the amount of effort the student makes has much more to do with one's academic achievement than inherited ability. Given the right conditions and support, almost everyone can achieve at high levels.

Implications of Principle

A primary condition for high achievement is high expectations and challenging targets. The single biggest obstacle to high achievement is the belief by faculty members that certain students-often those from low-income families and minority groups—can't achieve at high levels. The principal has to engage the faculty in setting challenging targets and find a way to create a culture of high expectations in which the whole faculty expects all of the students to reach those targets and communicates those expectations lo the students.

High expectations and pressure LO achieve must he accompanied by appropriate support. Because different students need different amounts and kinds of help to reach the targets, one of the most important roles of the principal is to see to it that the school is organized to accurately assess where every student is with respect to the standards at any point in time. And for those students who are falling behind, the

principal must ensure that programs of assistance are in place that will get those students to the standards, no matter how far behind the students are when they start out. While the standards remain the same for everyone, the support given to students must be varied according to individual need.

Principle 2 : Learning is About Making Connections

Knowledge is a "constructive process." We learn by adding new knowledge to the knowledge we already have and integrating it with that knowledge. To make that process of integration effective, we have to organize our existing knowledge into some sort of structure. Among the most useful functions of formal education is the way in which it provides powerful frameworks on which students can "hang" new knowledge. Those frameworks come in the form of the theories and concepts associated with the academic disciplines and the very structures of the disciplines themselves. It is the very process by which we fit new and unfamiliar facts to frameworks we have made our own that constitutes what we mean by the word "understanding/'And it is understanding that permits us to use what we have learned to solve problems that are not quite like any that we have encountered before. Either the new knowledge that we acquire fits the structures we carry with us, or we must alter the structure to accommodate the new knowledge.

The act of fitting the new knowledge with the old and adjusting the structure until it fits both new and old knowledge is a creative act, not simply a passive act of "adding another book to our shelf of knowledge." We are constantly selecting what new knowledge we want to integrate with what we already know, making connections to that old knowledge and then making adjustments to our whole understanding of the world and how it operates. We learn by activating and constructing networks of related concepts or "schemata." This is an active process that is greatly facilitated by constant interaction with other people and the larger world around us-interaction that helps us try out new frameworks on which to "hang" our knowledge, provides challenges from which we can learn and problems for us to solve, and thereby provides both new knowledge and an opportunity to find out whether our explanations of how the world works hold up in practice.

Implications of Principle 2

The principal has an important role to play encouraging teaching that places a premium on students as active learners and problem solvers. This involves encouraging teachers to present the core concepts of the subject matter clearly and straightforwardly, on the one hand and, on the other, to create an environment in which students:

- Internalize those concepts
- Test their own knowledge against them
- Use the concepts and theories as frameworks in which they can hang new knowledge
- Challenge the concepts and theories constantly, both as a means to better understand them and to makes changes to the frameworks of their understanding as they interact with the world.

Thus principals should not only coach teachers to help students create the structures on which they can hang new knowledge, but also to create classrooms that are busy places, full of talk and movement, so that they can become the scene of a constant interplay between ideas and action.

Principle 3 : We Learn with and Through Others

Most learning is done in a setting in which others are present. We teach one another, exchange ideas, reinforce concepts, solve problems, debate ideas, and challenge assertions with others. Student learning is greatly enhanced when students understand and accept the conventions that structure such social interactions in the classroom. This embraces rules of discourse including everything from the criteria for demonstrating that a mathematical solution is correct to making a point about a piece of literature based on evidence taken from the text, to understanding the conventions for determining what order students are recognized in class.

Implications of Principle 3

The principal's role is to recognize the link between social interaction and learning and to encourage the notion of a "community of learners" in which students articulate and justify their thinking, and listen and respond constructively to the views of their peers. The principal can also seek opportunities to promote cooperative learning and the use of powerful strategies such as peer-and cross-age tutoring, which have been shown to exert a powerful impact on learning.

Principled 4 : Learning Takes Time

How much we can learn is a function of how much time we have to learn it. A given task will be learned only if the learner spends the amount of time needed to learn it. Moreover, individuals need different amounts of time in order to learn the same things.

Implications of Principles 4

When time is not available to do all that the curriculum calls for, then priorities must be set on the basis of what it is most important to learn. When time is not available in the regular school day to teach all that is high priority, then time must be made available outside the regular school day to teach it. It is mainly up to the principal to set the priorities for what is most important to learn during the regular school day. This may mean providing double periods for students who are having difficulty, and making sure that those double-period courses are properly staffed, which will entail cutting back on some other aspect of the curriculum or of the sports program. Similarly, it is the responsibility of the principal to make sure that students who are behind get the extra instructional time they need before school, after school, on Saturdays and during the summer break.

Of course, it is not just the total amount of time available for learning that matters, but rather the amount of engaged learning time. This implies that the principal will take action to minimize interruptions and disruptions and maximize the time students are on task.

Principles 5 : Motivation Matters

Our levels of motivation affect our readiness to learn. Students who see a connection between something they want for themselves and what they are being asked to learn, who believe in their ability to learn and who feel good about themselves as learners, make more progress than those who see no purpose in learning, who doubt their abilities, who are fearful of failure, or who are excessively anxious about their results.

Deep understanding and a feeling of mastery can produce highly motivated students. So can the demonstration of what they have learned to peers and adults when they have met a high standard of accomplishment. Finally, high levels of motivation can arise when students see purpose and meaning in what they are learning at school.

Implications of Principle 5

The principal has a key role to play in promoting across the school a culture in which students has a belief in their capacity to succeed as learners and in which positive reinforcements are given for effort and achievement, as opposed to punishments for failure to learn. This could mean establishing a system of rewards that give tangible recognition to all students who meet expectations and achieve excellence.

It also means listening to students' feelings about learning and themselves as learners and constantly encouraging positive attitudes.

Principle 6 : The Teacher Matters

How much a student learns depends much more on which teacher within the school the student gets than what school he or she goes to. This suggests that if all teachers in the school in a given subject taught as well as the best teacher, the result would be far higher student achievement throughout the school as a whole. It follows that improving the quality of teaching is the key to school improvement.

Implications of Principle 6

The principal must become knowledgeable about every teacher with respect to his or her ability to enable the students in his or her classes to reach high standards. He or she must know what practices produce effective teaching and provide detailed coaching assistance to teachers to enable them to improve their teaching in a standards-based environment. He or she must also create a school culture in which the constant monitoring and improvement of teaching practice is one of the highest values of the professional staff of the school and make sure that the resources (chief among them time) are made available to support that priority. Establishing the new culture will mean breaking down the old culture in which how the teaching of any one teacher is the business of no other teacher. It will involve the creation of a culture in which teachers are constantly collaborating to define what good teaching is and learning from and critiquing the teaching of one another to advance the practice of teaching throughout the school.

Principle 7: Focused Teaching Promotes Accelerated Learning

The key to accelerating learning lies in matching instruction to the level of the learner. When students are presented with tasks that are well beyond their level of competence, learning is unlikely to occur. Instead they become anxious and quickly give up. When they are presented with tasks that are easy and well within their competence, learning is also unlikely to occur, because they have already learned how to do the task and without specific motivation to repeat it, they quickly become bored.

Rapid learning is likely when the difficulty of the task is in alignment with the ability of the learner. Teaching that aligns instruction we refer to as "focused teaching." The teacher's role is to 'scaffold' the learning of the new task, revealing to the learner how to move from what he or she can currently do independently to a higher

level of cognitive functioning. Vygotsky referred to this critical zone in which learning can be facilitated as the "zone of proximal development." He defined this zone as, "the distance between the actual development level as determined by independent problem solving and the level of potential development as determined through problem solving under adult guidance or in collaboration with more capable peers". Higher levels of understanding occur as a result of focused teaching and of performance in the zone of proximal development.

Implications of Principle 7

The concept of the zone of proximal development has far-reaching implications for teaching and for school and class organization. It implies constant monitoring of each student to establish starting points for instruction and to enable matching of instruction to the development level of the student. It also implies that teaching is driven by knowledge of what students can do and what assistance they need to move to a higher level of cognitive functioning. The principal has an important role to play in legitimating teaching that seeks to accelerate learning by supporting students to move from actual to potential levels of development. The principal can also assist by facilitating forms of school and class organization that allow teachers to respond effectively to the wide range of student abilities encountered within a given grade, such as cross-age grouping and use of within-class instructional groups.

Principle 8 : Clear Expectations and Continuous Feedback Activate Learning

Students achieve at higher levels when they have a clear image of what is expected of them. The most effective image for that purpose is an example of student work that meets the standards to which they are expected to work. Their chances of producing work that meets those standards is further enhanced if they have access to clear criteria for judging the quality of their work, in addition to examples of work that meet the standard. Finally, students are most likely to produce work that meets the standard when they have access to continuous feedback on their work so that they know how to bring it up to the required standard.

Implications of Principle 8

The principal must ensure that standards are at the heart of classroom teaching and that each lesson is focused on meeting those standards. The most effective way to help students internalize these standards is to prominently display them, along with criteria that indicate whether the standard has been met and examples of student work that meet the standards.

The principal should visit classrooms on a daily basis. These visits should be purposeful and focused. The primary focus should be on student work and the extent to which it is meeting the standards. The principal should seek to establish the extent to which students are aware of the standards and the criteria for meeting them. Finally, the principal should be alert to the extent to which students are receiving feedback on their work related to the standards.

Principle 9 : Good Teaching Builds on Students'n Strengths and Respects Individuals' Differences

Each child arrives at school with a unique mix of strengths and weaknesses. Learners make use of different ways knowing and have individual strengths that they exploit in learning a new task. Some may have strong language skills and others may have unusual artistic talent. Some may get along very well with other people and others may have gift for logical-mathematical reasoning.

Individuals find it easier to learn using a particular ability or adopting a particular style. But these are not set in concrete; abilities and styles are capable of being developed in school.

Implications of Principles 9

The principal can establish a culture within the school that seeks to respond to and develop different learning styles and a wide range of cognitive abilities. Within schools, there is a danger that teaching will focus on and value a narrow range of abilities and be insensitive to different learning styles. Good teaching builds on student strengths and respects differences in the learning styles of individuals because by doing so, students are able to progress more rapidly to address areas of weakness.

Principle 10 : Good Teaching Involves Modelling What Students Should Learn

Much of what students need to know and be able to do is best learned the time-honored way, by apprenticing to an expert, in the form of a teacher. The student is presented with a challenge. The facilitator models the behavior the student is being asked to demonstrate. Then the student is asked to attempt the set task. In the early stages, the teacher provides a lot of guidance and support; later on, progressively less guidance is provided until the student is able to perform the task independently. For example, the teacher might begin by reading to a group of young students. Later on, they work together in shared or guided reading sessions, finally moving to independent reading.

The students' performance is evaluated in relation to explicit standards and associated criteria, and the student is asked to make revisions in response to the feedback provided.

The assigned tasks get progressively more demanding as time goes by. The teacher sets the level of difficulty of each new task at a level that is within the students "zone of proximal development." That is, it is demanding but not so demanding as to demoralize the student, thus enabling the student to make rapid progress. At key points the student's work product is presented to a wider audience. This process is repeated through as many cycles as necessary to enable the student to produce work that meets the standard.

Implications of Principle 10

In schools one frequently encounters teaching that reflects very different but equally dangerous, views of effective teaching. One is that students are "empty vessels" that need to be "filled up" and that the role of the teacher is to "tell" the students what they need to know. The other is that learning is a natural process and that the role of the teacher is to simply be on hand to "facilitate" the learning. While there are times for telling and times for facilitating, accelerated learning calls for a form of cognitive apprenticeship of the kind described above in which the teacher models the desired behavior, initially providing a lot of structure as students learn to perform independently. The principal can act as a coach to teachers in assisting them to find the right balance in their teaching.

Principle 11 : The Curriculum Should Focus on Powerful Knowledge

In a world in which information is growing exponentially and in which much higher levels of knowledge and skill are needed by most people to do the work for which they will be responsible, it is vital that educators provide students with access to powerful knowledge. Knowledge is powerful when it provides a basis for further learning and when it concerns important and validated knowledge. Three of the most important kinds of powerful knowledge are:

- The new basics, since these provide the foundations of learning in almost all other areas. According to Levy and Murnane (1996), they include:

- The ability to read at a ninth grade level or higher
- The ability to do math at the ninth grade level or higher
- The ability to solve semi structured problems where hypotheses are formed and tested

- The ability to work in groups with persons of various backgrounds
- The ability to communicate effectively, both orally and in writing
- The ability to use personal computers to carry out simple tasks like word processing.

- Discipline-based subjects (especially history, mathematics, and science), since these provide entry-points to the stock of human knowledge and foundations for understanding validated and important knowledge; and
- Skills, strategies, and attitudes that support independent, purposeful learning and problem solving, since these are capabilities that remain important throughout one's life in coping with change.

Implications Principle 11

Principle 12 : All Students Should Experience a ''Thinking Curriculum"

Our culture believes that some people are born smart and others are not, and that there is nothing that can be done about it. But research shows that it is quite possible to learn how to act intelligently. We can all be taught to manage our own thinking and learning processes. Challenging tasks that support deep thinking will stimulate intelligent behavior, as will explicit teaching of cognitive and metacognitive strategies. It is not true that students must be taught basic facts and procedures before they can engage in challenging tasks that require deep thinking and learning. The contrary is true. Students can more easily acquire those facts and learn those procedures if they have conceptual framework on which to hang those facts and can understand why the procedures work the way they do. Thus the learning of basic skills and higher-order thinking should go hand in hand.

Higher-order thinking is particularly facilitated by an emphasis on extended problem-solving around "fertile questions" that are of intrinsic interest and relevance to students, that have no one correct answer, that are open-ended, that lead in many directions and that tap into a number of disciplines or fields of knowledge.

Implications of Principle 12

The principal is critical to establishing within the school a curriculum in which there is an emphasis on higher-order thinking. All too often, teachers feel pressured to cover far too much content and because of the lack of time, do so in a very shallow and superficial way. The principal can promote the idea that covering less content in greater depth can mean greater understanding. To facilitate in-depth learning,

the principal can create larger blocks of instructional time. The principal can also encourage explicit teaching of cognitive and metacognitive strategies and teaching in which all students are provided with challenging tasks that stimulate and support deep thinking.

1.7 References

Bandura, A. (1977). *Social learning theory.* Englewood Cliffs, NJ: Prentice Hall.

Bandura, A. Ross, D., & Ross, S. A. (1961). Transmission of aggression through the imitation of aggressive models. *Journal of Abnormal and Social Psychology, 63,* 575-582

Bandura, A., & Walters, R. H. (1963). *Social learning and personality development.* New York: Holt, Rinehart, & Winston.

Binet, A. & Simon, T. H. (1916). *The development of intelligence in children: The Binet-Simon Scale.* Publications of the Training School at Vineland New Jersey Department of Research No. 11. E. S. Kite (Trans.). Baltimore: Williams & Wilkins.

Bredo, E. (1994). Reconstructing educational psychology: Situated cognition and Deweyian pragmatism. *Educational Psychologist,* 29(1), 23-25.

Bussey, K. & Bandura, A. (1999) 'Social cognitive theory of gender development and differentiation', *Psychological Review, 106,* 676-713.

Cattell, R. B. (1971). *Abilities: Their structure, growth, and action. Boston:* Houghton Mifflin.

Cobb, P. (1995). Continuing the conversation: A response to Smith. *Educational Researcher, 24(6),* 25-27.

Derry, S. J. (1999). *A Fish called peer learning: Searching for common themes.* In A. M. O'Donnell & A. King (Eds.),

Diaz, R. M., & Berk, L. E. (1992). *Private speech: From social interaction to self-regulation.* Lawrence Erlbaum.

Ernest, P. (1999). *Social Constructivism as a Philosophy of Mathematics:* Radical Constructivism.

Ferster, C. B., & Skinner, B. F. (1957). *Schedules of reinforcement.*

Frauenglass, M. & Diaz, R. (1985). Self-regulatory functions of children's private speech: A critical analysis of recent challenges to Vygotsky's theory. *Developmental Psychology, 21(2),* 357-364.

Freund, L. S. (1990). Maternal regulation of children's problem-solving behavior and its impact on children's performance. *Child Development, 61,* 113-126.

Gardner, H. (1999) *Intelligence Reframed. Multiple intelligences for the 21st century,* New York: Basic Books. Useful review of Gardner's theory and discussion of issues and additions.

Gredler, M. E. (1997). *Learning and instruction: Theory into practice* (3rd ed). Upper Saddle River, NJ: Prentice-Hall.

Greeno, J. G. (2006). Learning in activity. In R. K. Sawyer (Ed.), *The Cambridge handbook of the learning sciences* (pp. 79-96). New York: Cambridge University Press.

Guilford, .1. P. (1950). Creativity. *American Psychologist,* 5,444-454.

Guilford, J. P. (1967). *The Nature of Human Intelligence.*

Hull, C. L. (1943). *Principles of behavior: An introduction to behavior theory.* New York: Appleton-Century-Crofts.

Huston, A. C. (1983) 'Sex-typing', in Hetherington, E. M. (ed.) *Handbook of child psychology: Socialization, personality, and social development (Vol. 4),* New York, Wiley.

Kohlberg, L. (1966). A cognitive-developmental analysis of children's sex- role concepts and attitudes. In E. E. Maccody (Ed.), *The development of sex differences.* Stanford, CA: Stanford University Press.

Kohlberg, L. (1966) 'A cognitive-developmental analysis of children's sex-role concepts and attitudes', in E. Maccoby (ed.) *The development of sex differences,* London. Tavistock.

Kohlberg, L. (1969). Stage and sequence: The cognitive-developmental approach to socialization. In D. A. Goslin (Ed.), *Handbook of socialization theory and research.* Chicago: Rand McNally.

Kornhaber, M. E. (2001) 'Howard Gardner' in J. A. Palmer (ed.) *Fifty Modern Thinkers on Education. From Piaget to the present,* London: Routledge. Kukla,

A. (2000). *Social Constructivism and the Philosophy of Science.* New York: Routledge.

Levy, F. and Murnane, R. J. (3996). With What Skills Are Computers a Complement?" *American Economic Review Papers and Proceedings,* LXXXVI, 258-262.

Martin, C. L, and Halverson, C. F. (1981). A schematic processing model of sex typing and stereotyping in children, *Child Development, 52,* pp. 1119-34.

Martin, C. L., Ruble, D. N. and Szkrybalo, J. (2002). Cognitive theories of early gender development, *Psychological Bulletin, 128,* 903-33.

McMahon, M. (1997). *Social Constructivism and the World Wide Web - A Paradigm for Learning*. Paper presented at the ASCILITE conference. Perth, Australia.

Mischel, W. (1966). A social-learning view of sex differences in behavior', in E. Maccoby (ed.) *The development of sex differences,* London, Tavistock.Ruble, D. N., & Martin. C. L. (1998). Gender development. In N. Eisenberg *(Ed.}, Handbook of child psychology: Social, emotional and personality development* (Vol. 3, pp. 933-1016). New York: Wiley.

Nuthall, G., & Alton-Lee, A. (1990). Research on teaching and learning: Thirty years of change.*ElementarySchoolJournal. 90,* 547-570.

Olson, D. R. (2004). The triumph of hope over experience in the search for "What Works": A response to Slavin. *Educational Researcher. 33(1),* 24-26.

Pavlov, I. P. (1897). *The work of the digestive glands.* London: Griffin.

Pea. R. D. (1993). Practices of distributed intelligences and design for education. In G. Solomon (Ed.), *Distributed cognitions: Psychological and educational considerations* (pp. 47-87). Cambridge, UK: Cambridge University Press.

Piaget J. (1936). *Origins of intelligence in the child.* London: Routledge & Kegan Paul.

Piaget, J., & Cook, M. T. (1952). *The origins of intelligence in children.* New York, NY: International University Press.

Prawat, R. S. (1995). Misleading Dewey: Reform, projects, and the language game. *Educational Research, 24(7),* 13-27.

Prawat, R. S., & Floden, R. E. (1994). Philosophical Perspectives on Constructivist Views of Learning. *Educational Psychologist,* 2P(1), 37-48.

Rogoff, B. (1990). *Apprenticeships in thinking.* New York: Oxford University Press.

Roid, G. H. (2003). *Stanford-Binei Intelligence Scales.* Fifth Edition (SB:V). Itasca, IL:

Riverside Publishing Ruble, D. N., & Martin, C. L. (1998). Gender development. In N. Eisenberg (Ed.), *Handbook of child psychology: Social, emotional, and personality development* (Vol. 3, pp. 933-1016). New York: Wiley.

Schaffer, R. (1996). *Social development.* Oxford: Blackwell.

Shunk. D. H. (2000). *Learning Theories: An educational perspective* (3rd ed.). Upper Saddle River, NJ.: Prentice-Hall.

Siegler, R. S., DeLoache. J. S., & Eisenberg. N. (2003). *How children develop.* New York: Worth

Skinner, B. F. (1938). *The Behavior of organisms: An experimental analysis.* New York: Appleton-Century.

Skinner, B. F. (1948). *Walden two.* New York: Macmillan.

Skinner, B. F. (1951). *How to teach animals.* Freeman.

Skinner, B. F. (1953). *Science and human behavior.* SimonandSchuster.com.

Skinner, B. F. (1971). *Beyond freedom and dignity.* New York: Knopf.

Slaby, R. G. and Frey, K. S. (1975) 'Development of gender constancy and selective attention to same-sex models' *Child Development, 46,* 849-56.

Spearman. C. (1904). "General intelligence," objectively determined and measured. *American Journal of Psychology 15,* 201-293.

Spencer, K. (1991). *The Psychology of Educational Technology and Instructional Media,* Liverpool, United Writers Press.

Stern, W. (1914). *The psychological methods of testing intelligence* (G. M. Whipple, Trans.). Baltimore: Warwick & York. (Original work published 1912)

Steinberg, R. J. (1977). *Intelligence, information processing, and analogical reasoning: The componential analysis of human abilities.* Hillsdale, USA: Lawrence Erlbaum.

Sternberg, R. J. (1984). Toward a triarchic theory of human intelligence. *Behavioral and Brain Sciences, 7,* 269-287

Sternberg, R. J. (1985). *Beyond IQ: A triarchic theory of human intelligence.* New York: Cambridge University Press.

Sternberg, R. J. (1995). *In search of the human mind.* Orlando, USA: Harcourt Brace College.

Sternberg, R. J.. & Detterman, D. K., eds. (1986). *What is intelligence? Contemporary viewpoints on its nature and definition. Norwood (NJ): Ablex. ISBN 0-89391-373-1.* This review of contemporary research includes chapters by Anne Anastasi, Paul B. Baltes, Jonathan Baron, J. W. Berry. Ann L. Brown. Joseph C. Campione, Earl C. Butterfield, John B. Carroll, J. P. Das, Douglas K. Detterman, W. K. Estes, H. J. Eysenck, Howard Gardner. Robert Glaser, Jacqueline J. Goodnow, John Horn, Lloyd G. Humphries. Earl Hunt, Arthur R. Jensen, James W. Pellegrino, Sandra Scarr. Roger G. Schank, Richard E. Snow, Robert J. Sternberg. Edward Zigler, and Cynthia A. Berg.

Stoddard, G. D. (1943). *The Meaning of Intelligence.* Mcmillan, New York.

Stokes, D. E. (1997). *Pasteur's quadrant: Basic science and technological innovation.* Washington, DC: Brookings Institution Press.

Terman, L. M. (1916). *The Measurement of Intelligence: An Explanation of and a Complete Guide for the use of the Stanford Revision and Extension of the Binet-Simon Intelligence Scale.* Boston. Houghton Mifflin Co.

Thorndike, E. L. (1898). Animal intelligence: An experimental study of the associative processes in animals. *Psychological Monographs: General and Applied,* 2(4), i-109.

Thorndike, E. L. (1905). *The elements of psychology.* New York: A. G. Seller. Vygotsky, L. S. (1962). *Thought and language.* Cambridge MA: MIT Press.

Vygotsky, L. S. (1978). *Mind in society; The development of higher psychological processes.* Cambridge, MA: Harvard University Press.

Vygotsky, L. S. (1987). Thinking and speech. In R.W. Rieber & A.S. Carton (Eds.), *The collected works of L.S. Vygotsky, Volume 1: Problems of general psychology (pp. 39-285).* New York: Plenum Press. (Original work published 1934.)

Wadsvvorth, B. J. (2004). *Piaget 's theory of cognitive and affective development: Foundations of constructivism.* Longman Publishing.

Watson, J. B. (1913). Psychology as the behaviorist views it. *Psychological Review, 20,* 158-178.

Watson, J. B. (1930). *Behaviorism* (revised edition). University of Chicago Press.

Watson, J. B., *&* Rayner, R. (1920). Conditioned emotional reactions. *Journal of Experimental Psychology, 3,* 1, pp. 1-14.

Wechsler, D. (1981) *Manual for the Wechsler Adult Intelligence Scale—Revised.* Psychological Corporation, New York.

Wechsler. D. (1989). *Wechsler Preschool and Primary Scale of Intelligence - Revised.* San Antonio, TX: The Psychological Corporation.

Wechsler, D. (1991). *The Wechsler intelligence scale for children—third edition.* San

Antonio, TX: The Psychological Corporation.

Zimmerman. B. J., & Schunk, D. 11. (2001). *Self-regulated learning and academic achievement: Theoretical perspectives (2nd ed.).* Mahwah, NJ: Erlbaum.

Unit -2 : Learning Process and Motivation

Unit : 2.1 ❑ Sensation

Structure

2.1 Introduction

All the information of the outside world comes to us through the sense-organs. They are described as 'the gate-ways of knowledge'. Through our five sense organs we acquire knowledge of the conditions outside our bodies. It is only when a particular sense organ is stimulated that we have a sensation. It is a response or reaction aroused in us by the stimulus. It is the stimulus that comes to us and the sensation is our own act, aroused by the stimulus. So, a sensation is an elementary mental process.
In this unit you will be studying the concept of sensation and its meaning, definition and sensory process.

2.1.2 Objectives

After reading this unit students will be able to:

- Explaining the meaning of sensation
- Define the term sensation Express the nature of motivation
- Express the types of sensation

2.1.3 Sensation

2.1.3.1 Meaning and Definition:

Sensation is an important mental process for getting knowledge. Some of the psychologists described that "sensation is a gateway of knowledge or window of soul and the mind." All kinds of information first we receive from the outside of the environment through our different sense organs i.e. eyes, noses, tongue, ears and skin. In the process of sensation it reacts to certain stimuli from outside or itself. Thus the eyes react to light and give us colour, the ears respond to sound waves in the atmosphere and give us noises and rhythmic music; the nose feel us about smells, the tongue about tastes and the skin about temperature, contact and pain. Sensation is an abstract mental condition.

Definition: Some important definitions are discussed here for clear understanding the sensation.

According to Sully James: "Sensation is a simple physical phenomenon resulting from the stimulation for the peripheral extremity of an afferent nerve when this is propagated to the brain."

Tichener defined that- "A sensation may be defined as an elementary mental process which is constituted of at least four attributes-quality, intensity, clearness and duration."

After a discussion of meaning and definition of sensation, we may conclude mat- Sensation is defined as the process in which a sensory receptor is stimulated, producing nerve impulses that -travel to the brain, which in turn interprets such impulses as a visual image, a sound, taste odor, touch, or pain. The physical stimulus present in the environment emits energy that is absorbed by a sensory organ, causing sensation.

2.1.3.2 Characteristics of sensation: After discussion the meaning and different definitions of sensation we can find some characteristics of sensation given below:

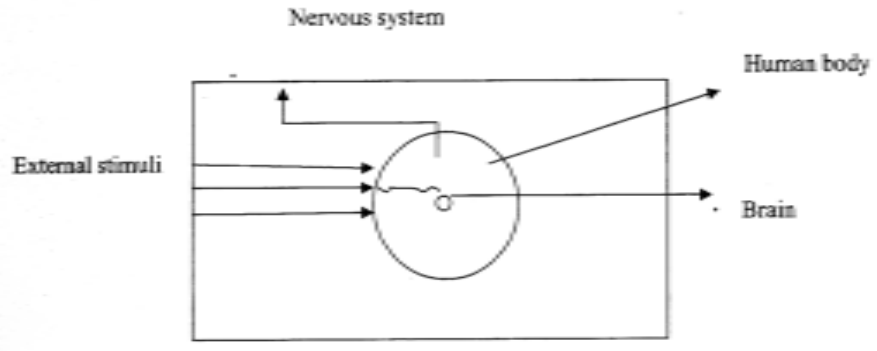
1. In the sensation process three components are necessary - stimulation, nervous system and mind.
2. Sensation is the simplest form of knowledge.
3. Sources of sensation is stimulus.
4. Sensation is a mental state like feelings. Though sensation is subjective but its feeling is personal.

5. Sensation remains passive while receiving but when sensation creates mind becomes active.

6. Sensation attracts attention forcefully.

2.1.3.3 Sensory Process :

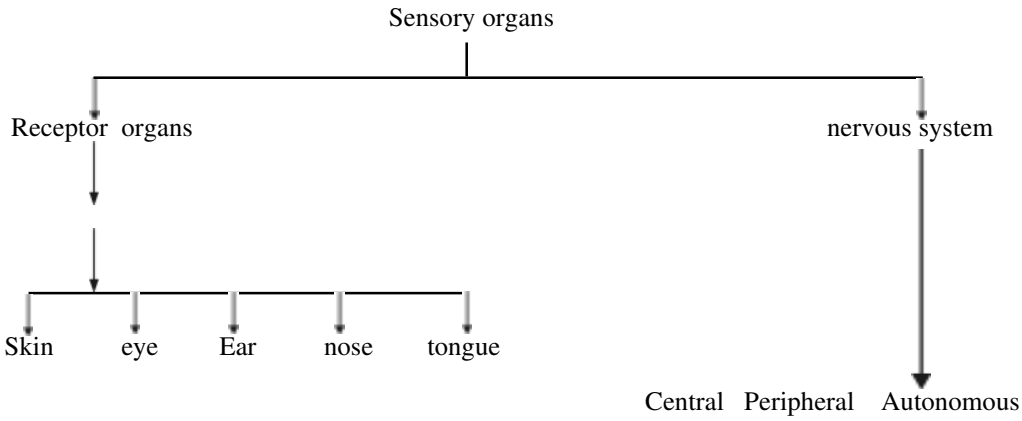
Sensation is the first step of knowing process. In the classroom situation when the teachers teach, the students feel one type of sensation that helps the learners to think about the subject matter. In every case, mainly our brain is linked with outside world through the five sense oreans by which all stimuli reach to the brain throush motor nerve.



Communication between person and external environment

In the sensory process there two different physical organs are used -i) Receptor organs

ii) Nervous system



Types of Sensation : There have five types of sensation:

1. **Visual sensation:** Two eyes are the central part of visual sensation. From different external stimulus light falls up on the eyes. That light enters into cornea and then enters into Irish to pupil. In pupil, there is aqueous humour that falls on lens which controls the light. From the stimulus the light moves to the lenses in a parallel way. After that the light creates an opposite image on the retina. This stimulus goes to visual sensation organ in brain through optic nerve and this organ shows normal image of stimuli that comes through eyes.

2. **Hearing sensation :** The organ of hearing sensation main and the stimuli are air waves.

   Light ways can go through vacuum medium but sound wave needs a medium. Every sound wave has three characteristics. I) Pitch, ii) loudness, iii) Timber.

   Sound waves enter into external auditory organ and hits on tympanic membrane and creates a vibration. This vibration goes to Cochlea (organ of Corte) through middle ear. From the Corte sensation auditory goes to the hearing sensation organ and then we can hear it.

3. Smell **sensation:** During breathing some smells molecule enters into nasal whole. In the nasal whole smell molecules are absorbed in nasal membrane. The smell sensation is received by olfactory cell and this sensation goes to smell through olfactory nerve. Then sense organ of brain analyses the smell molecules and we feel smell sensation.

4. **Sensation** of Taste: During eating at first food is dissolved in (Saliva) and comes contact with taste buds. Then taste cells are stimulated and this stimulation goes to taste sensation organ through nerve, then we get the taste of any food.

5. Skin sensation: Any type of skin sensation reaches to brain through skin sensation nerve. Then we feel heat, pressure. Cold, pain and different skin related sensation through our brain.

2.1.4 ‘‘Check your progress :’’

1. What is sensation?

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6. Write the meaning of sensation?

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7. Write some characteristics of sensation.

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8. Discuss the types of sensation

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9. What do you mean by visual sensation?

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2.1.5 Let us sum up

Sensation is the first step of inculcating knowledge. It is the primary sense of knowledge. All the information we receive through our five sense organs, i,e. eyes, ears, noses, tongue and skin. According to five sense organs there have five types of sensation-

i) visual sensation

ii) Hearing sensation

iii) Smell sensation

iv) Sensation of taste

v) Tactual or Skin sensation.

2.1.6 Unit end exercises:

1. Define sensation.
2. Discuss the meaning of sensation.
3. Explain the sensory process
4. What do you mean by visual sensation?
5. What are the characteristics of sensation?
6. Describe the different types of sensation
7. Write a short note on;
   a. Hearing sensation
   b. Smell sensation

2.1.7 References

1. Aggarwal. J. C. Essentials of Educational Psychology (second edition). Vikash publishing House Pvt. Ltd. Noida (U, P.) (2007).
2. Bhatia, H. R. (Fifth edition) Orient Longmen Ltd. : Elements of educational psychology, Hyderabad. (1986).
3. Chauhan, S. S. Advanced Educational Psychology (Seventh Edition). Vikash Publishing House Pvt. Ltd. '(2007), Noida, (U.P).
4. Dandapani, S. (Second Edition). Educational Psychology. Anmol publications, New Delhi (2003).
5. Ghosh. S. K. Adhunik sikshabigyan. Bani Samsad Publicating House, (2009), Kolkata.
6. Kundu, C. L. & Tutdo, D. N. Educational Psyschology (fifth revised edition). Sterling Publishers Pvt. Ltd., New Delhi (1998).
7. Sharma. R. A. : Fundamentals of Educational Psychology (third edition, 2001). Surya Publication, Meerut.
8. Mangal, S. K. Educational Psychology, Prakash Brothers, Tandon publications. Ludhiana (2001).

Unit : 2.2 ❑ Attention

Structure

2.2.1 Introduction

The term ‘attention’ is frequently used in our everyday situation. Entering into the classroom, the teacher announces, “attention please[1]". Attention is a process which the individual to select some particular stimulus according to his interest and attitude out of the multiplicity of stimuli present in the environment. It can never be considered as a force or a faculty of the mind. Attention is of two factors such as external and internal. Teachers and educators can implement these factors of attention for the betterment of their learning and success.

2.2.2 Objectives

After reading this unit students will be able to :

- Explaining the meaning of attention
- Define the term attention
- Express the characteristics of attention
- Describe the factors of attention
- List out the educational significance of different factors of attention.

2.2.3 Attention

2.2.3.1 Meaning and Definition

In our daily life we always use the term 'attention'. Generally attention means to concentrate our mind in a particular object from different stimuli in a particular object from different stimuli. In the classroom situation most of the teachers try to become attentive his/ her students on his/her lesson. The teachers often tell his students please pay your attention to the blackboard and text books. But very commonly we can see that our mind cannot strictly point in a particular object. Very frequently il is replaced from one object to another. Thus attention is taken as a power, capacity or faculty of our mind, which can be turned on or off at will or something in kind or form that can be lent or given to this or that situation.

Meaning:

Attention is the heart of the consciousness process and it is basis to all the mental activities and behaviour. When we are conscious of any object, it means that an individual is aware of its presence in the environment. To attend to an object means to became aware of it more keenly specifically than other stimuli and keep this object in the focus of consciousness. Consciousness is a wider field and includes attention. When a person attends to a part of the field of consciousness, the rest is not attended to. While we are looking on the blackboard in a particular object, we are conscious of a large number of objects in the classroom, But the object of blackboard is at the centre of consciousness and other particulars of the classroom remain at the margin of consciousness.

Definition:

Attention depends upon the nature and strength of stimulus in the environment. The psychologists have defined attention in a number of ways.

According to Ribot - "emotive process translated into action",

McDougall (1920) defined that: "Attention is merely conation or striving, considered from the point of view of its effect on cognitive process."

B. Dumville(1938):

"Attention is the connection of consciousness upon one object rather than upon another.'[1] Stout (] 953): "Attention is conation determining cognition."

J. B. Ross (1954) : "attention is a process of getting an object of thought clearly before the mind."

Roediger et. al. (1987): "attention can be defined as the focusing of perception that leads to a greater awareness of a limited number of stimuli."

2.2.3.2 Characteristics of attention:

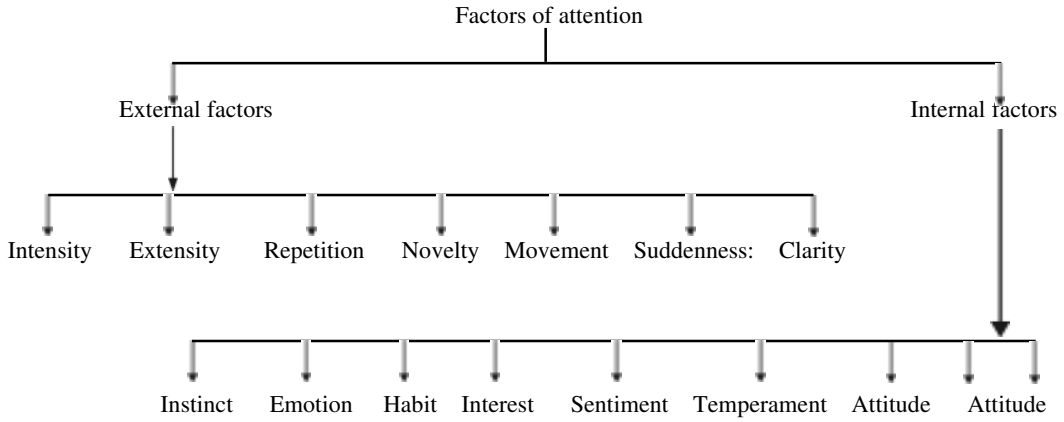
On the basis of previous discussion and definitions the chief characteristics of attention may be noted as:

1. Attention is a form of activity of the mind.
2. Attention is essentially a process and not a product.
3. It helps our awareness of consciousness of our environment.
4. Attention or the consciousness is selective.
5. At any one time we can concentrate or focus our consciousness on one particular object only.
6. Attention is shifting from one stimulus to another.
7. Attention is cognitive, affefctive and conative.
8. Attention helps us in the clear understanding of the objects.

2.2.3.3 Factors of Attention:

Attention depends on strength and nature of the stimuli and it is the process of selectiveness. In a particular moment we select any object in our focal point of consciousness. There have some factors or conditions in which anybody selects one topic or object in a particular situation. Mainly there are two types of factors such as:

1) External factors of attention
2) Internal factors of attention



2.2.3.3.1 External factors:

Some important external factors may be noted as:

1. **Intensity:** The main external factor of attention is intensity of a stimulus. In a normal situation strong or intense stimuli will attract our attention. Such as: red colour, a loud noise, intense perfume etc.
2. **Extensity:** The size of the stimulus is one of the important external factors to draw the attention. Because the large size of objects have a stimulus value than smaller stimuli.

   A large building will be more readily attractive than a smaller hut. The advertisement agency used these criteria to attract the audience very easily.
3. **Repetition:** Repetition is a factor of great importance in securing attention. We may ignore a stimulus the first time, but when it is repeated, comes to the sense organ in several times it is bound to draw our attention. In the classroom the teacher tries to draw our attention on important word he emphasizes it again and again.
4. **Novelty:** We generally attracted by new object rather than common household objects. Novelty occupies a unique character that differs from others. That's why new fashion dresses, cars, styles, teaching styles draw our attention very quickly.
5. **Movement:** A moving stimulus catches our attention more quickly than one which is still. In the market areas different moving electrical advertisements are very easily draw our attention rather than still ones. The stimulus value of moving object is much higher than others.
6. **Suddenness:** Sudden presence of stimulus bound to draw our attention on these particular stimuli, though we are not ready to draw our attention on it. Such as

sudden ringtone of mobile in the classroom, thunder and lightning etc. are bound to draw our attention.

7. **Clarity:** Clearness or lucidity of stimuli generally draws our attention very quickly because its stimulus value is higher than normal ones. Good handwriting, sweet voice of the singer generally draws our attention most.

2.2.3.3.2 internal factors:

In a particular situation a person will attend to a stimulus that depends not only on the external or "objective factors of the stimulus but also depend upon the person's own interest, motives, sentiment, basic instincts etc. these are mainly subjective factors of attention. Let us try to understand the subjective or internal factors of attention in securing the attention of a person.

1. **Instinct:** Basically our attention draws as per our instincts. Such as food, thirst, sex is our basic instincts. When we feel hungry, we look or attentive to a food plaza or hotel. For our aesthetic instinct we are attracted by red roses.
2. **Emotion:** Emotion is one of the internal factors to draw our attention. Love, affection, anger, fear, jealousy these emotions draws our attention easily. Such as a person who loves another, he or she always becomes attentive to each other. One who jealous to another, also becomes attracted to him or her style, dresses, behaviour etc. when we become fearful, we want to keep safe place.
3. **Habit:** The role of habit in our life has immense significance as McDougall opines- ''habit is our best friend and worst enemy." When the teacher enters into the classroom, the students stand up, when the teacher evaluates the answer scripts his/ her eyes falls on wrong words or mistakes. Ad agency also uses this factors to draw the public attention such as "idea"
4. **Interest:** Interest is latent attention which is very helpful factor for securing attention. We attend to objects in which we are interested and we do not attend to those in which we have no interest. In the newspapers, senior members of the family pay attention to the political news as per their interest. On the other hand female members are attracted by entertainment pages (rupcharcha, Horoscope) as per their interests.
5. **Sentiment:** Sentiment is an emotional complex mental process. By the sentiment different persons pay attention as per their own sentiment. For example we become excited when our country wins in sports against foreign country. A student who is sentimental to a particular teacher, generally draws his/her attention to his/her class normally.

6. **Temperament**: Temperament controls the behaviour of a person. For examples highly aggressive person easily react to face any abnormal situation in public area.
7. **Attitude:** Attitude means the combination of pre-experience, emotion and his own idea. When a student possesses positive attitude he 'she very easily draws his/her attention to the study. Whereas one who has negative attitude, he/she ignores the study and frustrated to education system.

2.2.3.4 How can you implement the factors of attention in classroom or education?

In the field of education it is very essential to draw the student's attention towards classroom teaching and study. It helps the teachers to teach well and helps the students to learn well. There is no doubt that attention is the key factor for the desired achievement of the learners and the success of education. So, the teachers can frequently use the external and internal factors of attention in their teaching learning process to pay the attention of the students towards his/her teaching.

1. When the teacher uses blackboard, he/she must remains careful for writing his topics boldly and clearly. So, that all the students very clearly can follow him. At the same time teachers voice in the classroom should be clearly presented to the students. In case of writing the text books at elementary level font size must be bold and colourful so that it becomes attractive to the learners.
2. Teacher should always try to bring novelty in his teaching. He/she can use TLM which are innovative and novel to the learners,
3. Movable teaching strategies may followed by the teachers during their teaching. They may present their topics for using OHP and PowerPoint presentation.
4. Teachers love and affection towards his/her students easily become attentive to his lesson, It is noticed that students who are paniked to the mathematics teacher cannot do well in mathematics paper.
5. Teacher's major role should be to arouse sentiment among the learners towards schools, teachers, subjects, so that they become easily attentive to their school subject and'teacher.
6. It is one of the important duties of the teachers to create interest in different areas among the learners. So, that they become interested in different areas easily.
7. The teacher may create good habits among his students so that they acquire good habit for their life. Such as habit of thinking, attentions etc. are very much essential for higher Studies or success in life.

8. Positive attitude generally pays to make attentive very easily. So, the teachers should arouse or awake positive attitude towards subject as well as education to make the learners successful in different fields.

2.2.4 ‘‘Check your progress’’:

1. What do you mean by attention?

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2. Write four characteristics of attention?

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3. What are external factors of attention?

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4. What are internal factors of attention?

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2.2.5 Let us sum up

Attention is an important mental process for learning. In the process of attention an individual select an object from different stimuli. Attention helps to increase efficiency and remember experiences. Attention depends on two types of factors, such as external & internal. With the help of these factors teachers can very easily become attentive to

the students. For securing attention of students the teacher can adopt novel learning experiences, by repetition, use of audio-visual aids etc.

2.2.6 Unit end exercises

1. What is attention?
2. What do you mean by external factors of attention?
3. What do you mean by internal factors of attention?
4. Discuss the characteristics of attention.
5. How can you implement the factors of attention in your classroom teaching?
6. Explain the external factors of attention.
7. Discuss the internal factors of attention with examples.

2.2.7 References

1. Kundu, C. L. & Tudo, D. N. Educational Psyschology (fifth revised edition). Sterling Publishers Pvt. Ltd./New Delhi (1998).
2. Sharma, R. A. : Fundamentals of Educational Psychology (third edition. 2001). Surya Publication, Meerut.
3. Bhatia, H..R. (Fifth edition) Orient Longmen Ltd. : Elements of educational psychology, Hyderabad. (1986).
4. Dandapani, S. (Second Edition). Educational Psychology. Anmol publications. New Delhi (2003).
5. Mangal, S. K. Educational Psychology, Prakash Brothers, Tandon publications. Ludhiana (2001)
6. Aggarwal. J. C. Essentials of Educational Psychology (second edition). Vikash publishing House Pvt. Ltd. Noida (U. P.) (2007).
7. Chauhan, S. S. Advanced Educational Psychology (Seventh Edition). Vikash Publishing House Pvt. Ltd. (2007), Noida, (U.P).
8. Ghosh, S. K. Adhunik Sikshabigyan. Bani Samsad Publicating House, (2009), Kolkata.

2.3 ❑ Perception

Structure

2.3 Introduction

Perception is combination of sensation with meaning. We sense qualities and we perceive objects. Perception gives meaning to sensation. Sensation is awareness of objects and perception is the awareness of this or that object. Perception involves two processes. It involves a sensation through the stimulus of a sense organ and an interpretation of the sensation. Perception is sensation plus thought.

2.3.2 Objectives

After reading this unit students will be able to know :—

- Differences between perception and Sensation.
- Different types of perception
- How perception is combination of sensation with meaning.

2.3.3 Perception

A meaningful sensation is called perception. When the sensation process is explained the primary concept of sensation transformed in perception. This is more elaborated in 2.3.3.1.

2.3.3.1 Meaning and Definition:

The process of organizing and interpreting sensory information so that it makes sense.

Receptor cells in our eyes record - that is, we sense a sleek silver object in the sky, but they do not see a jet plane. Recognizing that silver object as a plane is perception.

Sensing and perceiving give us views of the setting sun, the sounds of a rock concert, the touch of soft caresses, the taste of sweets, the fragrance of flowers of all the various stimuli that are present in your environment right now, you are able to sense and perceive only some of them. Every specialist adapted to sense and perceives stimuli that matter to that species' ability survives in its environment.

A meaningful sensation is called perception. When the sensation process is explained the primary concept of sensation transformed into perception. Sensation is awareness of objects and perception is the awareness of this or that object. For example, waiting on the road I hear a sound from the back side calling someone with my name. Then at that moment I conclude that it is my friend (Sanlap's) voice. Because such voice (Sanlap) has been previously familiar to me day to day. Thus when a sensation (voice of Sanlap} means an object we call it perception. It involves a sensation through the stimulus of a sense organ and an interpretation of the sensation.

2.3.3.2 Differences between Perception and Sensation

In the year 1765 Thomas Reed first differentiates between sensation and perception. He commented that though perception comes from sensation yet perception is more complex than sensation. To Reed sensation is the result of physical activity. But perception is the interaction between body and mind. The difference between sensation and perception is given below:

SENSATION	PERCEPTION
Sensation is the knowledge of object	Perception is meaningful sensation.
Sensation is not knowledge but components of knowledge	Perception is subjective knowledge.
Sensation is the primary process for acquiring knowledge	Perception depends on sensation.
During sensation our mind remains passive.	During perception mind becomes active.
Sensation is a condition of perception	Perception is a mental process
Sensation is linked with present	Perception is linked with present and past
We do not get the full shape of the object in sensation	In case of perception we get full shape of object.
Its function is to provide components of knowledge	Its function is to make sensation meaninful and co-related.

2.3.3.3 Types of Perception:

Perception is of four types such as-

1. Direct perception
2. Acquired perception
3. Apperception
4. Deviated perception

1. **Direct perception** : Perception through direct sense organs is called direct perception. When we look at a red rose or touch a piece of ice, we acquire knowledge about red coulour or cool ice directly.
2. **Acqured Perception:** When we acquire any sensation through such organ which is not wanted, then it is called acquired perception. For example, when we touch ice, we feel it is cold. But when we look at ice, our visual sensation reminds about past experience about icy cold, so through eyes we feel that ice is cold.
3. **Apperception:** Apperception is readiness to perception. The experiences that is kept in our mind with long before and is viewed with the light of new incidents, it is called apperception, For example, a common person visualizes a tree as a tree but when a botanist observes a tree, he/she analyses it in the light of his past

experiences. That is why; apperception plays a vital role regarding an object or matter for conception.

When we teach a child a new idea, we try to link with his/her familiar subjects/ elements with the help of apperception.

4. **Deviated perception:** In our real life we do not perceive many things rightly. We perceive deviated from real situation. For example, in the moonlight night we feel the existence of ghost seeing a big banana leaves. Deviation is of two rypes-

a. Illusion

b. Hallucination

a) **Illusion:** Illusion is perfect sensation. The mistake that is done is of perception process. As illusion is a primary mental process, so mental tendency is the source of mistakes.

b) **Hallucination;** To perceive such a thing that has no real existence is called hallucination. In the opinion of Stout, it is done due to change in blood flow in brain.

But in the opinion of Freud hallucination is one type of mental disease. For example, we feel the existence of ghost without any valid reason. According to our five sense organs we may categorize the perception into five types:

1. **Visual perception:** Two eyes are the central part of visual sensation. From different external stimulus light falls up on the eyes. That light enters into cornea and then enters into Irish to pupil. In pupil, there is aqueous humour that falls on lens which controls the light. From the stimulus the light moves to the lenses in a parallel way. After that the light creates an opposite image on the retina. This stimulus goes to visual sensation organ in brain through optic nerve and this organ shows normal image of stimuli that comes through eyes.

Generally the process of visual perception is like the function of a camera. Through it we can know different things like shape, design, difference of colour, distance, depth etc. it helps to judge comparatively different sizes, shapes of animals and plants.

Light rays entering into pupil falls on lens and then it meets at focus. Position of the object determines focal length and for this reason curvature of lens can be

changed. When stimulation creates in retina, it reaches to brain through nerves and visual perception takes place,

A problem regarding visual perception is given below:

Colour perception: Among animals man is the only one who can differentiate among different colours. Young and Helmhotz in their Tri-chromatic theory first mentioned that in our retina there are three types of cone cells. The first one is stimulated by blue colour (wave length 400-500 nm) the second is by green colour (475-600 nm) and third one is by red colour (490-650 nm).

Other colours are the mixture of those three colours in different ratio. Later Brown and others mentioned opponent process theory. According to this theory, the chemical reaction that prevails among three cone cells is opposite and sensible to different lights. The function of first cone cell is blue-yellow, second function of cone cell is red-green, third function of cone cell is white-black, But whereas blue light does such chemical reaction, yellow light does the opponent type.

2. **Hearing Perception:** The main organs of hearing sensation are ear and the stimuli are air waves. Light ways can go through vacuum medium but sound wave needs a medium. Every sound wave has three characteristics. 1) Pitch, ii) Loudness, iii) Timber.

When we hear any sound coming behind it is sensation. But after hearing the sound when we look behind and recognize the person who is calling me, is called perception. Such type of perception is called hearing perception.

Sound waves enter into external auditory organ and hits on tympanic membrane and creates a vibration. This vibration goes to Cochlea (organ of Corte) through middle ear. From the Corte sensation auditory goes to the hearing sensation organ and then we can hear it.

3. **Smell Perception:** During breathing some smells molecule enters into nasal whole. In the nasal whole smell molecules are absorbed in nasal membrane. The smell sensation is received by olfactory cell and this sensation goes to smell through olfactory nerve. Then sense organ of brain analyses the smell molecules and we feel smell sensation.

When we smell the fragrance of a rose, we recognize it as a flower named rose. One of my friend who uses same perfume and then smell perception happens by me.

4. **Perception of Taste:** During eating at first food is dissolved in (Saliva) and comes contact with taste buds. Then taste cells are stimulated and this stimulation goes to taste sensation organ through nerve, then we get the taste of any food.

   When we eat a sour fruit we can say it is sour when we take sugar, we can say it is sweet; tongue plays an important role in the function of taste perception. We can taste sweet taste by the front part of the tongue, bitter taste by back part, and sour by the two sides of the tongue. There are nerve cells in the tongue. But there is no taste is selected at the middle part of the tongue.

5. **Skin Perception:** Any type of skin sensation reaches to brain through skin sensation nerve. Then we feel heat, pressure, cold, pain and different skin related sensation through our brain.

   When a bite is felt by us it is sensation but when we recognize it that the bite of a mosquito, it is skin perception. Similarly when we feel any pain, it is sensation but after recognizing the cause of the pain, and when it becomes meaningful to us that it is my friends pushing by pen on my skin, it is called skin perception.

2.3.4 ‘‘Check your progress’’ :

a) What is perception?

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b) Write some differences between sensation and perception

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c) What is hallucination?

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d) What is illusion?

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e) How can we visually perceive?

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2.3.5 Let us sum up

Perception is a very important mental process of learning. Through this process a learner can learn or getting any knowledge of objects. In education perception is very essential for getting or knowing the objects. Sensation and perception both are interrelated to each other. But they have some basic differences. Perception may categorize in different point of view. Generally we categorized the perception on the basis of our five sense organs i.e. visual perception, hearing perception, smell perception, taste perception and skin perception etc.

2.3.6 Unit end exercises

a) What do you mean by perception?

b) How the perception does differ from sensation?

c) What is illusion?

d) What is hallucination?

e) Explain the types of perception.

f) What is perception? Discuss the process of visual perception.

g) What is deviated perception? Discuss its different types, h) Write a short note on:

   a) Colour perception

   b) Smell perception

   c) Skin perception

2.3.7 References

1. Aggarwal, J. C. Essentials of Educational Psychology (second edition). Vikash publishing House Pvt. Ltd. Noida (U. P.) (2007).
2. Bhatia, H. R. (Fifth edition) Orient Longmen Ltd. : Elements of educational psychology, Hyderabad. C1986).
3. Chauhan, S. S. Advanced Educational Psychology (Seventh Edition). Vikash Publishing House Pvt. Ltd. (2007), Noida, (UP).
4. Dandapani, S. (Second Edition). Educational Psychology. Anmol publications, New Delhi (2003).
5. Ghosh. S. K. Adhunik Sikshabignan. Bani Samsad Publicating House, (2009), Kolkata.
6. Kundu, C. L. & Tutdo, D. N. Educational Psyschology (fifth revised edition), Sterling Publishers Pvt. Ltd., New Delhi (J998).
7. Sharma, R. A. : Fundamentals of Educational Psychology (third edition, 2001). Surya Publication, Meerut.
8. Mangal, S. K. Educational Psychology, Prakash Brothers. Tandon publications. Ludhiana(200l)

Unit : 2.4 ❐ Memory

Structure

2.4.1 Introduction:

Memory is an important factor of learning. In our traditional educational system, memorization is very essential for the success of the learners. Without proper memorization learners cannot succeed in life. So memorization process is to learn something and to memorizing proper situation. It has four components-i) learning ii) retention, in) recall, and iv) recognition.

2.4.2 Objectives

After reading this unit students will be able to:

- Explaining the meaning of Memory
- Define the term Memory
- Express the stages of Memory
- Express the types of Memory
- Write the implication of Memory in education

2.4.3 Memory

2.4.3.1 Meaning and Definition

One of the aims of school instruction is to expand the knowledge of learners. The teacher's responsibility is to encourage the learners to acquire and to retain the knowledge imparted in school for future use in meeting life problems. Memory increases our efficiency. It enables us to remember important facts, ideas, names etc. and other items of information. Memory is the function of the mind by virtue of which it records, retains and produces ideas gained by its own activity.

Many times we use the word 'remembering in place of memorization, both the terms mean the same meaning. Our mind possess a special ability by virtue of which every experience or learning leaves behind images or Iraces which are conserved in the form of anagrams. This preservation of memory traces by the central nervous system or brain is known as retaining of the learned act. How long you can retain depends upon the strength and quality of memory traces. When you try to recollect or repeat past experiences, you make use of memory.

Definition:

Memory has been defined by many psychologists. Some of the important definitions are as follows:

According to Woodworth and Marquis-"Memory consists in remembering what has previously been learned."

Ryburn views that- "the power that we have to store our experience and to bring them

into the field of consciousness sometime after the experience has occurred is termed memory."

Stout defined that -

"The ideal revival, so far as field revival is merely reproductive in which the objects of past experience are reinstated as far as possible in the order and manner of their original occurrence."

According to Ross- "Memory is a complex process involving the establishment of dispositions, their retention and the recalling of experience that have left the dispositions behind them."

Eysenck (1970) stated that "Memory is the ability of an organism to store information from earlier learning process, experiences, retain and reproduce that information in answer to specific stimulation."

2.4.3.2 Stages of Memory:

According to Woodworth four main elements of memory are: learning (acquisition), retention, recall and recognition.

1. Learning :

This is the first stage of memory. It is the process of establishing association of the ideas in mind. To remember a poem or a text, the first thing to be done is to learn or get it by heart who never seen 'TajmahaP cannot explain the beauty of Tajmahal.

2. Retention:

It is the process of relegation of the past experience in the subconscious mind of the individual in the form of a mental experience. Progress in learning happens only when the thing learnt is retained. Knowledge develops if the materials learnt are preserved in the mind in the form of images.

3. Recall:

It is bringing again to mind the past experience on the basis of association if ideas. Recall is of two types: i) spontaneous and ii) deliberate. In spontaneous recall we make no effort to recall but the experiences or ideas just flow. In deliberate recall, we make an effort to recall something.

4. Recognition:

It is the capacity to recognize or express knowledge of all seeing a thing that has been seen earlier. The individual is able to identify different objects due to recognition ability.

2.4.3.3 Types of Memory

Memory may be categorized in various kinds but we will discuss here only some important types of memory:

1. **Short term memory (STM):** Often in daily life situations we need to recall material immediately or after a very short time. The information temporarily stored in short term memory may last as long as thirty seconds even if the material is not being rehearsed. When we go to a new city we have to remember the names of different streets and persons or telephone numbers. All these situations are the examples of short-term memory.
2. **Long term memory (LTM):** Psychologists think of long-term memory (LTM) as a store house where information is stored fairly permanently when we are not recalling it. Long-term memory codes information according to meaning, pattern and other characteristics. It is this memory that helps us to remember a number of things on a relatively permanent basis. Remembering identifying data like one's name, fathers name, date of birth, date of marriage. etc. is the simplest example of long-term memory.
3. **Sensory or immediate memory:** Sensory or immediate memory is the memory that helps an individual to recall something immediately after it is perceived. In this memory the retention time is generally from a fraction of second to several seconds. Immediate memory is needed when we want to remember a thing for a short time and can then forget it. When we go for a journey in a train talking with co passenger and when we leave the train we forget the person. This is one type of sensory memory.
4. **Photographic memory:** Photographic memory means memory possessed by a person who can remember a scene in photographic detail. This memory also known as eidetic imagery memory. Such people can 'see' a picture after it has been taken away, with their descriptions of objects from the picture stating the right colour and the proper locations.
5. **Episodic and semantic memory:** This memory is based on some episodes and events. This events may be personal events and experiences associated with one's life. At the time of event he/ she stored in the shape of episodic memory traces

organized according to the time, space and other characteristics of the events. When we want to recall the events these memory traces are reproduced in the manner and sequence in which they have been organized and stored in one's mental set up. For example, in educational excursion the students can narrate the experiences of excursion through the episodic memory.

2.5.3.4 Economic methods of Memorization:

1. **Interest:** Interest is essential for useful learning and memorization. If someone has great interest on any subject he/she becomes self-motivated by subject. If one has interest in music, he/she easily grasp the tone of a new composition easily.
2. **Attention:** Without attention, learning and retention cannot take place properly. "Attention is the control process that governs the flow of information from the sensory register to short-term memory"- Paraswrana and Davis, 1984, Triesman and Geladi, 1980). The tor-he/she cannot memorize it properly for a long time.
3. **Meaningful learning:** If someone reads a topic without understanding the meaning of without understnading the meaning of the topic, he/she cannot memorize it properly for a long time.
4. **Chunking and rhythm :** Chunking and rhythm also help learning and help in remembering. For example mobile number of 9732562682 can easily be memorized and recalled if we try to group it as 9732 56 26 82. Similarly rhythm provides to be an aid in memorizing. Children learn effectively the multiplication table by reciting then in a sing-song.
5. **Principle of association:** It is very helpful to follow the principle of association in learning. The letters VIBGYOR have proved to be a very effective aid to remembering the colours of the rainbow.

   V- Violate, I- Indigo, B-Blue, G- Green, Y-Yellow, R- Red.
6. **Over learning:** If we learn more and more about an object or material, we cannot forget it after a long time. For example, we never forget our name, address, and best friend's name.
7. **Repetition and practice:** After learning if we repeatedly practice it, we can easily memorize it and this memory converts into long-term memory. For example, if one does not practice maths or computer for a long time, we easily forget it.

8. **Emotional equilibrium:** While learning we are disturbed emotionally, we can learn it properly and easily forget it. So in the time learning we must not be emotionally disturbed.
9. **Uses of multiple sensory organs:** While learning if we use multiple organs, it helps us to memorize for a long time. Such as demonstration method and PowerPoint presentation is more helpful to memorize due to use of multiple sense organs.
10. **Distributed learning:** Affter learning and reading if we give some time space, it helps us to memorize it for a long time.

2.4.4 Problem Solving

2.4.4.1 Meaning and definition

From our early childhood we are facing a lot of problems. There are needs and motives that to be satisfied. So, definite goals or aims are set. The productive work involved in the evaluation of the situation and the strategy worked out to reach one's set goals is collectively named as problem solving. This is an essential exercise for individual advancement as also for the advancement of society. It is a process of overcoming difficulties that appear to interfere with the attainment of a goal. It helps in the removal of or adjustment with and ultimately helps an individual to reach his goal and satisfy his motives.

The productive work involved in the evaluation of the situation and the strategy worked out to reach one's set goals is collectively termed problem solving, this is an essential exercise for individual advancement as also for the advancement of society. The psychologists have defined about problem solving in a number of ways. Woodworth and Marquis (1948) stated that

"Problem solving behaviour occurs in novel or difficult situations in which a solution is not obtainable by the habitual methods of applying concepts and principles derived from past experience in very similar situations." According to Skinner (1968) -

"Problem solving is a process of overcoming difficulties that appear to interfere with the attainment of a goal. It is a procedure of making adjustment in spite of interferences."

2.4.4.2 Steps of problem solving behavior :

Psychologists have suggested different steps involved in the process of problem-solving according to their respective findings and viewpoints:-

John Bransford and Barry Stein (1984) advocated five steps that are basically associated with the task of problem-solving. They referred to these as 'IDEAL' thinking and arranged than in the following order:-

I-Identifying the problem.

D- Defining and representing the problem.

E- Exploring possible strategies.

A- Acting on the strategies.

L- Looking back and evaluating the effects of one's activities.

In general the following steps may be followed in the task of problem solving:-

1. **Problem awareness:** this is the first step in problem solving. At this step an individual is concerned with it awareness of the problem which needs to be solved. He must be faced with some obstacle in the path of the realization of his goals, needs or motives and consequently he must be conscious of the difficulty or problem.
2. **Problem understanding:** After facing or encountering the problem, the individual should identify and analyze the problem for its exact nature to become clear to him.
3. **Collection of the relevant information:** At this stage the individual is required to collect all the necessary information about the problem by all possible means. He may consist with experienced persons read the related literature, recall his own experiences think of the numerous possible solutions, and put in all possible efforts to collect comprehensive data and knowledge concerning the problem.
4. **Formulation of hypothesis:** After understanding the nature of the problem, one may start some cognitive activities to think out the various solutions to the problem.
5. **Selective of the correct solutions:** In this important step, all the possible solutions, thought out in the previous step, are closely analyzed and evaluated. Gates and others (1948) have suggested the following activities in the evaluation of the assumed hypotheses or solutions.
    a) Identify the conclusion that completely satisfies all the demands of the problem,'
    b) Find out whether the solution is consistent with other well-established or accepted facts and principles.

c) Make a deliberate search for negative aspects which might cast any doubt upon the conclusion.

The suggestion mentioned above would help the individual to select the proper solution of his/her problem out of the numerous solutions that may be available. In the final analysis, however, he has to use his own discretion by utilizing his higher cognitive abilities to properly identify the appropriate hypothesis or solution by rejecting all other hypothesis.

6. Verification of the concluded solution or hypothesis: The solution arrived at or conclusion drawn must be further verified by applying it in the solution of various similar problems and only if the derived solution helps in the solution of these problems, should one consider the solution to be acceptable. Such a verified solution may then become a useful product of one's problem-solving behavuiour and be utilized in solving other future problems.

2.4.5 Thinking

2.4.5.1 Meaning and Definition:

Thinking is a cognitive ability. Good poetry, a highly developed computer or a robot, a beautiful painting, or nice buildings are all products of the thinking. Even to understand or to appreciate, we have to employ our power of thinking. Thinking is a complex process and the most difficult concept in psychology to define or explain. Some of the important definitions are given below for clear explanation about thinking.

According to Ross (1951):

"Thinking is mental activity in its cognitive aspect or menta! activity with regard to psychological objects."

Valentine (1965) stated that

"In strict psychological discussion it is well to keep the thinking for an activity which consists essentially of a connected flow of ideas which are directed towards some end or purpose.''

Garrett (1968) defined that

"Thinking is behaviour which is often implicit and hidden and in which symbols (images, ideas, and concepts) are ordinarily employed."

Mohsin (1967) defined that

"Thinking is an implicit problem-solving behaviour."

Gilmer (1970) stated that

"Thinking is a problem solving process in which we use ideas or symbols in place of overt activity.

2.4.5.2 Theories of thinking: different psychologists have put forwarded various theoretical view points from time to time to explain the nature, mechanism and development of thinking.

1. Behaviouristics learning theory:

According to this theory, thinking behaviour is acquired in much the same way as other modes of behaviour, interest, attitude, knowledge and skills etc. J. B. Watson opined that there is association between the movement of one tongue or vocal cords with one's thoughts. Here S-R mechanism takes place. So. the response, an outcome of one's thinking is the product of the associated stimuli–that generates the thinking-process. The same stimuli generate the same type of thought and the organism thus becomes conditioned. The behaviorists viewed thinking as that private behaviour which is determined by stimulus control and reinforcement in the same way as overt behaviour.

3. **Gestalt and Holistic theory:**

In the process of thinking leading to problem solving behaviour the organization of the perceptual field. Thinking behavior is always purposeful and goal-oriented - according to it. While thinking, one gets to look at the whole field or context in which the thinking is occurring. With this wider perception, one is set for the reorganization and restructuring of the perceived field or and optimal solution of the problem in hand. The acts of such restructuring or reorganizing of the perceptual field belong to the process and product of thinking.

4. Bruner's Theory of Cognitive Development:

Jerome S. Brunei hypothesized that one's thought processes evolve as a result ot maturation, training and experiences through a series of sequential stages. The stages of cognitive development advocated by him for this purpose are-

i) **Enactive,**

ii) **Iconic and**

iii) **Symbolic.**

The first stage that is enactive representations stage is characterized by the child's representation of appropriate motor activities. At the stage he is unable to make use of

language images or other symbolic representations for carrying out his thought processes and acts out and represents them through no-verbal activities based on motor actions and movement. The second stage that is iconic representation stage is characterized by the child's representation of things and events in terms of sensory images or mental picture.

The final stage i.e. symbolic representation stage is that stage of one's cognitive development when thought about things and events is not necessarily dependent upon the motor activities or sensory images and mental pictures. During this stage symbolic representations in the form of words, symbols and other imaginary abstract phenomena take the place motor manipulation or concrete visualization.

For example, to understand a question like: "If a child has four apples and his sister has three, how many apples do they have between them? One does not now need to actually have these apples (in physical terms) or to draw a mental picture of these apples for the counting. One may just write the numbers 4 and 3 or mentally visualize these numbers to add them up.

5. Freud's psychoanalytic theory:

Sigmund Freud's psychoanalytic theory of thinking may be described as the inherent desire for satisfaction of the sex urge and the role of the unconscious in moulding and shaping or one's behaviour. The thinking behaviour is also governed through those two factors. If the goal is pleasure through sex gratification, the thought process would be naturally colour accordingly and since nine -tenths of one's psyche consists of the unconscious and sub-conscious, the major portion of one's thinking must emerge from it. The wish fulfillment, dreaming and unconscious morbid thinking, should thus be considered to be a major part and parcel of one's thought process influencing one's interests, attitudes and overall behavior.

In the process of development of thinking, the new-born infant does not show any sign of thought-related activities. In fact, his mental life is characteristic at this stage and is driven by a set of psycho-physiological drives, for example, when he/she is hungry, he/she cries.

Gradually, Freud maintains, the infant develops a kind of self-centered thinking termed as narcissistic thinking. His behavior is almost entirely dominated by the Id and the pleasure principle and the thoughts of the infant are highly coloured by instinctual impulses demonstrating a total disregard of realities and logic.

As the child grows older, another part of his personality, the ego comes into play. He then begins to pay attention to people and his environment in order to be able to

cope with it effectively. He now begins to operate according to the reality principle and his thought processes become more rational and logical. Symbols and words also became involved in his thinking but he still remains ego-centric. With the entry of another component of personality, the super-ego his thinking is now fashioned in accordance with the mores and ideals of a society. It becomes more objective. The development of creative thinking, enrichment of fantasy, imagination and abstract thinking is the outcome of emergence of the super-ego and the subsequent expansion of the child's thinking apparatus.

2.5.4 ''Check your progress''

1. What is memory?

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2. Write some definition of memory

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3. Explain the meaning of memory

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4. Discuss the types of memory

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5. What do you mean by problem-solving

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6. Discuss the steps of problem solving behaviour

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7. What is thinking?

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8. Explain the gestalt theory of thinking

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9. Explain the freud's theory of thinking

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2.5.5 Let us sum up:

Memorization is most important mental process of learning. In the present formal education system without memorization a learner cannot success in his learning areas. Memory has some steps i.e. learning, retention, recall and recognition. A teacher must have to knowledgeable about memory and how memory can be improved. There have some techniques to improve or strengthening the memory.

Thinking refers to a pattern of behavioiur in which we make use of internal representations of things and events for the solution of problems. The important theories

for understanding the nature, development, and mechanism of thinking are, the behaviourist's learning theory, Gestalt theory, Piaget theory, Freud's theory, Burner's theory etc. Each of these theories explains the human thought processes.

Problem-solving is a deliberate and serious act, involves the use of some novel methods, higher thinking and systematic planned steps for the realization of set goals. The systematic steps involved in effective problem-solving may be identified as problem awareness, problem understanding, and collection of relevant information, formulation of hypotheses and selection of a proper solution.

2.5.6 Unit end exercises:

1. What is memory?
2. What do you mean by thinking?
3. What is problem solving behaviour?
4. Discuss the different steps of memory
5. Explain the different steps of problem solving?
6. What are the different steps of memory? Write some economic methods of memory
7. What is thinking? Explain the different theories of thinking
8. Write short not on
   i) Freud's theory of thinking
   ii) Gestalt theory of thinking
   iii) Memory and education
   iv) Types of memory

2.5.7 References

1. Aggarwal, J. C. Essentials of Educational Psychology (second edition). Vikash publishing House Pvt. Ltd. Noida (U. P.) (2007).
2. Bhatia, H. R. (Fifth edition) Orient Longmen Ltd. : Elements of educational psychology, Hyderabad. (1986).

3. Chauhan,. S. S. Advanced Educational Psychology (Seventh Edition). Vikash Publishing House Pvt Ltd. (2007), Noida, (U.P).

4. Dandapani, S. (Second Edition). Educational Psychology. Anmol publications, New Delhi (2003).

5. Ghosh, S. K. Adhunik sikshabigyan. Bani Samsad Publicating House, (2009), Kolkata.

6. Kundu, C. L. & Tutdo, D. N. Educational Psyschology (fifth revised edition). Sterling Publishers Pvt. Ltd., New Delhi (1998).

7. Sharma, R. A. : Fundamentals of Educational Psychology (third edition, 2001). Surya Publication, Meerut.

8. Mangal, S. K. Educational Psychology, Prakash Brothers, Tandon publications. Ludhiana (2001)

Unit : 2.5 ❐ Motivation

Structure

2.5.1 Introduction

In this world all individuals have an inner drive or urge. This drive or urge is known to as motivation. For useful learning, motivation plays a vital role. There is a need for creating a conducive environment for learning and motivating the children to learn. Children are curious by nature. They always want to learn new things. A teacher has to take advantage of all these facts in order to turn the attention of children to what he/she has to teach them in the classroom.

2.5.2 Objectives

After reading this unit students will be able to :

- Explaining the meaning of motivation
- Define the term motivation

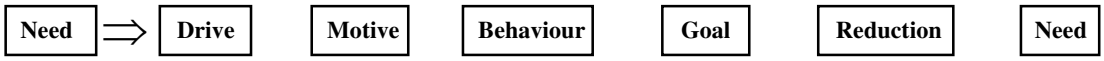
- Express the nature of motivation
- Describe the- factors of motivation
- Express the types of motivation
- Explain the Maslow's theory
- Write the implication of motivation in education

2.5.3 Motivation

2.5.3.1 Meaning and Definition

The term motivation comes from the Latin word 'moveers' which means to move. Motivation is an internal force which accelerates response or behaviour. Some learners learn the same subject matter more efficiently than others, some find it more rewarding and interesting than others, and some enjoy it more than others. At any time learners vary in the extent to which they are willing to direct their energies to the attainment of goals due to difference in motivation.

Motivation is the very heart of the learning process. No learning is possible without motivation. It has been stated that "motivation arouses interest. Interest is the mother of attention and attention is the mother of learning. Thus to secure learning you must first engage the mother, grandmother and great grandmother." The steps involved in motivation are given below:



Definition: Some of the important definitions are given here for having a clear understanding of the term motivation.

According to Bernard (1965): "Motivation is the stimulation of actions towards a particular objective where previously there was tittle or no attraction to that goal."

Guilford stated that (1950): "A motive is any particular internal factor of condition that tend to initiate and sustain activity."

Atkinson (1966) defined motivation as: "The term motivation refers to the arousal of tendency to act to produce one or more effects.[11]

Maslow (1954) defined that ''Motivation is constant never ending fluctuating and

complex and that it is an almost universal characteristic or particularly every organismic state of affairs.''

Crow and crow (1962) stated that "Motivation is considered with the arousal of the interest in learning and to the extent is basic motives.'

2.5.3.2 Nature of Motivation:

Motivation is a very complex phenomenon which is influenced by multiple variables operating within the organism and in the environment. Motivation has some unique nature. After discussion different views and definitions of motivation, there are some natures of motivation. These characteristics of nature may be noted as:

1. Motivation creates interest to the learner towards learning.
2. Motivation is controls the behaviour.
3. Motivation leads to self actualization in learning.
4. Motivation is the arousal of tendency to act and product result.
5. Motivation engaged the learner towards activities until the goal is not reached.
6. Motivation is directed to a selective goal.
7. Motivation initiates and-energies activity in learning.
8. Motivation is the internal condition or factor of learning.
9. Motivation provides the energy and accelerates the behaviour of the learner.
10. Motivation releases the tension and helps in satisfying the needs of the learner.

2.5.3.3 Types of Motivation:

There have two types of motivation:

1. Internal or intrinsic motivation
2. External or extrinsic motivation

I. Internal or intrinsic motivation : Some of the individual feels inner drive to fulfill or reach his own goal. This inner drive mainly intrinsic motivation. Intrinsic motivation creates due to internal urges, drives, needs and appetites. Men possess appetite for food, for water, for rest, and sleep, for change of variety, for play, for sex etc. A great part of life of man in spent in activities which are motivated by these appetites. One of the most important foundations of happiness, contentment and mental health is a feeling

of security in terms of basic organic needs. When this security is threatened, one may become a radical in thought, he may try to lay the blame on others or he may do any one of a great number of positive things developed from his training and experience.

2. **External or extrinsic motivation:** most of the cases motivation arouses through external stimulus like, praise, gifts, certificate, good marks etc. this type motivation is called external or extrinsic motivation. Learning must proceed in the absence of internal motivation. If there is intellectual immaturity and lack of sensitivity to ultimate consequences and ideals in the individual, then internal motivation will fail. In such circumstances recourse is to be taken to external motivation. It has to be built upon the foundation of some existing natural response or tendency. Extrinsic motivation is not permanent rather than intrinsic motivation.

2.5.3.4 Maslow's theory of motivation:

Abraham Maslow developed the new humanistic theory of self-actualization in the year 1954. He believed that man can work out a better world for mankind as well as for himself. He critically examined the traditional approach of pain, avoidance, and pleasure seeking and tension reeducation as the major sources of motivating behaviour. According to Maslow human needs arrange themselves in a hierarchy. In other words, the appearance of one need generally depends on the satisfaction of the others. They are closely related to each other and may be arrange from the lowest to the highest development of the personality. He proposed fife sets o± basic needs that can be arranged in a definite hierarchical order for understanding human motivation as shown below:

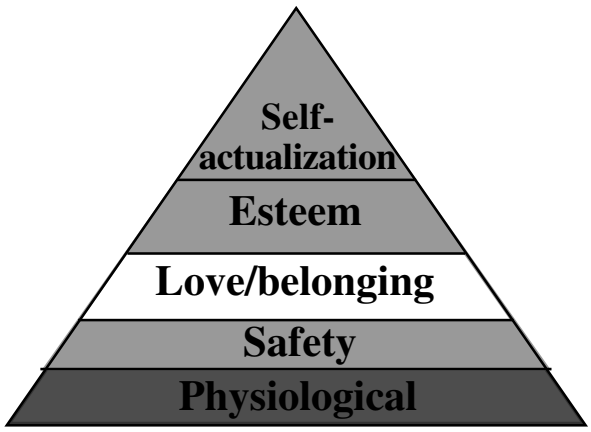


Fig: Maslow's hierarchy of needs

The needs of the first category include psychological needs, such as hunger and thirst. Ones these needs are satisfied, the person seeks to satisfy safety needs- love needs, belongingness need land esteem needs. In this way the motivational behaviour of a person is always dominated not by his satisfied needs but by his unsatisfied wants, desires and needs. Psychologically, self actualization means to fulfill one's individual nature in all its aspects. When all the basic needs are satisfied self actualization is possible. According to Maslow, when the basic needs are satisfied at least minimally, he will be motivated towards self actualization. A self actualized individual will be dynamic and optimistic. He will be void of anger, distress, malice, selfishness and aggressiveness. He behaves with love, tolerance and spirit of cooperation.

Change to the original five Stage model are indented and include a seven stage model and a eight-stage model, both developed doing 1960's and 1970's.

1. **Biological and Psychological needs–air**, food, drink, shelter, wormth, sex, sleep etc.
2. **Safety needs–protection** from elements, security, order, law, stebility, etc.
3. **Love and belongingness needs**–friendship, intimacy, affection and love, from work-group, family, friends, romantic relationships.
4. **Esteem needs**–Self esteem, achievement, mastery, independence, States, dominance, prestige, managinal responsibility etc.
5. **Cognitive needs**–Knowledge, meaning etc.
6. **Aesthetic needs**–appreciation and search for beauty, balance, form etc.
7. **Self Actualization needs** – realizing personal potential, Self-fulfullment seeking personal growth and peak experiences.
8. **Transcendence needs**–helping others to achieve self actualization.

2.5.3.4 Role of Motivation in education: motivation is very important factor of education as well as teaching learning situation. A motivated student spontaneously pays attention to the learning. The teacher's role should be aroused motivation to the learners. According to Garratte - "motivation is a super highway to learning." M. K. Thomson stated that motivation is that education, by which interest is created in a person who does not have it. Due to interest the students concentrate their attention on studies. The following points show the importance of motivation in education.

1. Teachers try to arouse the motivation to his students towards teaching and learning.
2. Teacher may be used different external stimuli for creating motivation.
3. A good teacher always tries to arouse motivation in a intrinsic way.
4. Teachers always try to fulfill the needs of the students, because the needs are the basis of motivation.
5. The teacher should encourage the children to learn by constructing and creating things.
6. Teachers role should be stimulate the impulse of curiosity to learners.
7. Both positive and negative verbal reinforcement be used in the classroom for motivated the learners.
8. Classroom's environment should be competitive and co-operative among the learners. Competition between groups makes it possible to spread the share of success or failure.
9. The teacher must provide pleasant and satisfying experiences to the students so that they are motivated for further learning.
10. Classroom's condition also one or the important factor of motivation. The rooms should be ventilated and well decorated with full light and air.

2.5.4 ''Check your progress'' :

1. What is motivation?

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2. Motivation derives from which word?

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3. Write the nature of motivation?

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4. Discuss the types of motivation

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5. What is self actualization?

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6. Discuss the Maslow theory of motivation?

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7. Explain four areas of the significance of motivation?

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2.5.5 Let us sum up

Motivation is the arousal of interest in learning. It is an internal force which accelerates the behaviour or learning. For useful learning motivation plays a vital role. Motivation is of two types- external and internal. A. Maslow developed a humanistic theory of self-actualization. It means to fulfill ones individual nature in al! its aspects. In the field of education specially learning motivation plays a vital role. With the help of motivation an efficient teacher can fulfill the student's highest level achievement.

2.5.6 Unit end exercises

1. What do you mean by the term 'motivation'?
2. What is the self actualization?
3. What is extrinsic motivation?
4. What is intrinsic motivation?
5. Write a short note on types of motivation?
6. What is motivation? Discuss the nature of motivation.
7. Explain Maslow theory of motivation
8. How can a teacher implement the motivation in education?

2.5.7 References

1. Aggarwal, J. C. Essentials of Educational Psychology (second edition). Vikash publishing House Pvt. Ltd. Noida (U. P.) (2007).
2. Bhatia, H. R. (Fifth edition) Orient Longmen Ltd. : Elements of educational psychology, Hyderabad, (1986).
3. Chauhan, S. S. Advanced Educational Psychology (Seventh Edition). Vikash Publishing House Pvt, Ltd. (2007), Noida, (UP).
4. Dandapani, S. (Second Edition). Educational Psychology. Anmol publications, New Delhi (2003).
5. Ghosh. S. K. Adhunik sikshabigyan. Bani Samsad Publicating House. (2009), Kolkata.
6. Kundu, C. L. & Tutdo, D. N. Educational Psyschology (fifth revised edition). Sterling Publishers Pvt. Ltd., New Delhi (1998).
7. Sharma, R. A. : Fundamentals of Educational Psychology (third edition, 2001). Surya Publication, Meerut.
8. Mangal, S. K. Educational Psychology, Prakash Brothers, Tandon publications. Ludhiana(2001)

UNIT 3 □ TEACHING LEARNING PROCESS

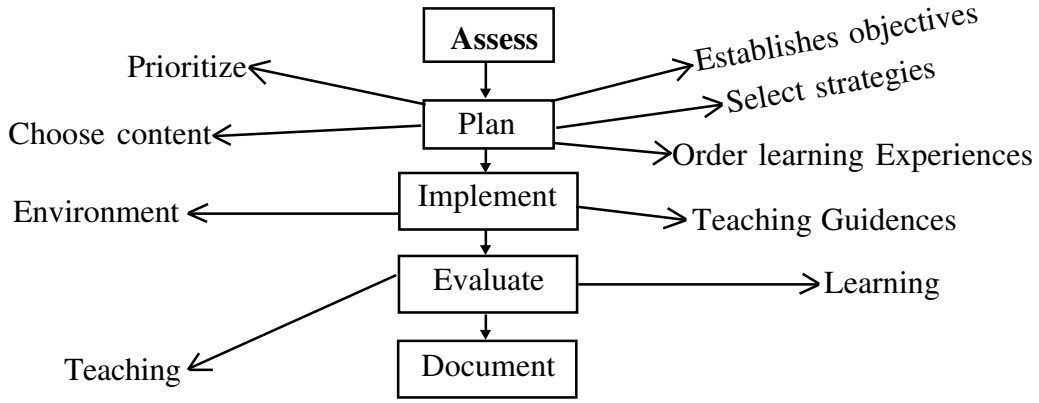
Structure :

3.1.1 Introduction :

Teaching is an active process in which one person shares information with others to provide them with the information to make desired behavioural changes.

Where as learning is the process of assimilating information with a resultant change in behaviours. Therefore, we may say that teachingl-learning process is a planned interaction that promotes behvaioural changes that is not a result of maturation or coincidence.

Teaching-Learning process describe through diagram as stated below :



Fig–1, teaching learning process as a digramatic view.

The above diagram represents a intimate relationship among the five steps. Assessment is the intial stage to diagnose the learner ability and capability. According to the result assessment the next phase is planned to carryout the teaching. In the same way after implementation it is evaluated for documentation.

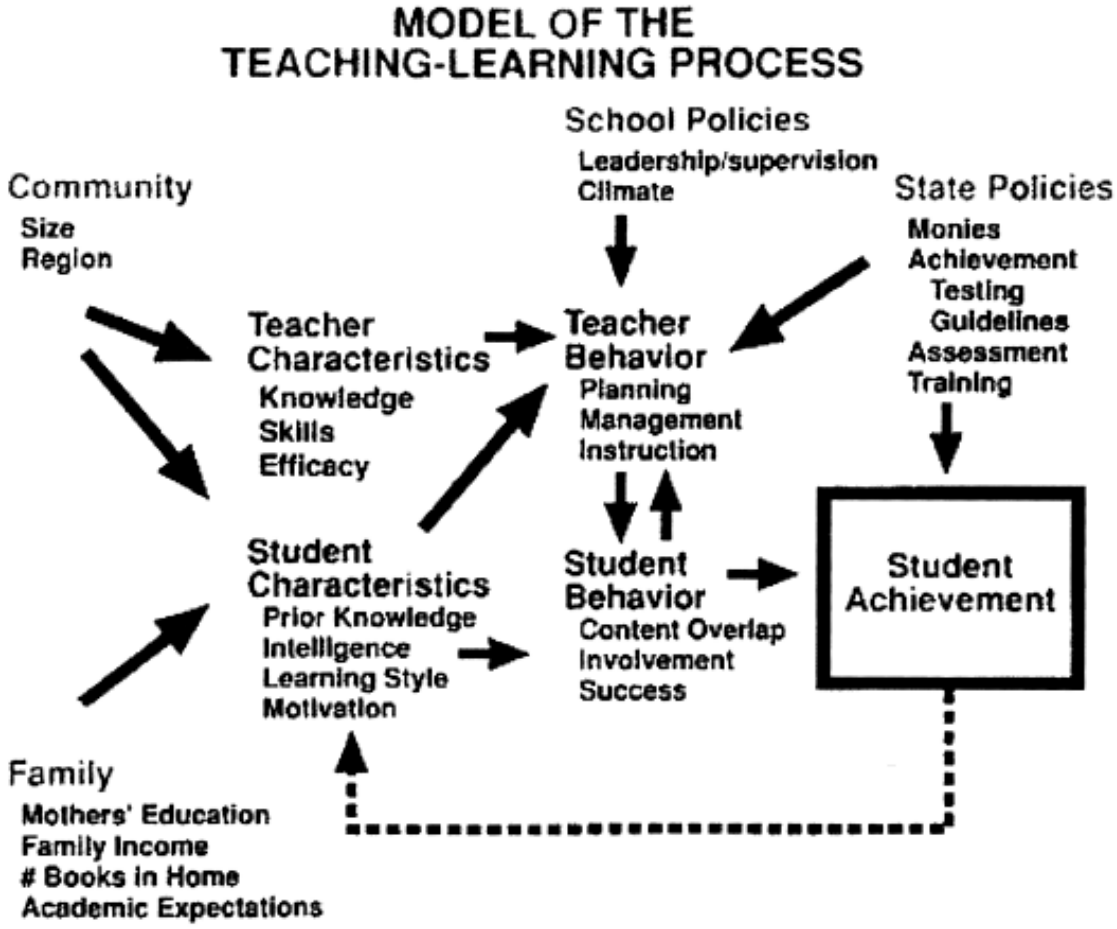


Fig-2, Model of teaching learning process

From the above two figures about the process of teaching-learning reflects that teaching-learning is the process of planning, organizing, leading and controlling the efforts of the variables involved and the resources avialable in the process of teaching-learning in such a way so as to result in the attainment of stipulated teaching-learning objectives with the maximum possible efficency and effectiveness.

The need and significance of teaching–learning process.

- It helps in identifying the teaching-learning objectives. Specifying them in behavioural terms and make the teachers and the pupils conscious of attaining them within the specified time available resources.
- Identifying the needs and characteriestics of the learners and help them accordingly.
- Helping in better teacher-pupil relationship, close cooperation and healthy integration in the process of instruction.
- Improving enriching the curricular contents, learning experiences and their proper organization and presentation to the learner.
- Identifying and utilizing the apopriate teaching-learning strategies, methods, tactics, teaching aids, etc., in view of learning experiences, objectives, and the available teaching-learnng environment.

The relationship between teaching and learning :

The teaching and learning are the two sides of the same coin. One cannot succeed without the supprt and success of the other. Teaching style of the teachers should be with the learne's learning style. Learner is the centre of teaching. Knowledge of the learner and his learning style should be considered. Learners become complex individual capable of learning on their own, the repertoire of teaching should also increase. Teaching is the cause and learning is the effect.

3.1.2. Objectives

On completion of the unit, the student teachers will be able to

- describe the maxims of teaching.
- understand the stages of teaching.
- comprehend the stages of learning.
- know learning environment.
- describe leadership role of teachers in classrrom, school and community.

3.2.1 Maxims of Teaching :

Teaching in simple terms, is referred to as either an occupation or profession of a group known as teachers or an activity or activities of a group undertaken to help an individual to learn or acquire some knowledge, skills, attitude or interests. However, the meaning and concept of teaching is not so simple. It is very complex social, cultural and either process designed in a social or cultural context.

According to H. C. Morrison (1934) : Teaching is an intimate contact between a more mature personality and a less mature one which is designed to further the education for the latter.

Therefore, teaching is a skilled job and a complex task. By all means, it is done for the benefit of the pupils i.e. to bring desirable changes or improvement in their behaviour. Success of this operation depends upon a good planning and masterly execution of the same. The educationist, psychologists, research workers and the teachers working in the fields have tried to establish some general principles, psychological principles and maxims of teaching which may prove quite helpful in making the task of teaching quite effective and purposeful. An attempt will be made to present the maxims of teaching.

Educationists and teachers engaged in the taks of acutal classroom teaching have evolved certain simple notions and worling ways based on their own experiences which may prove quite helpful in the task of teaching. These are known as maxims of teaching.

Some maxims of Teaching are stated below :

■ **From known to unknown :** This is the basic notion for learning beacuse known can always prove a reliable base for making acquitance with the unknown. Similarly, previous knowldge of a particular subject or topic may help us to collect new information and explore the unknown. After acquiring knowledge and skills solving the problems on addition and subtration, one can learn easily the essentials of multiplication and division. A wise teacher should always plan his teaching on the principle of proceeding from the known to the unknown.

■ **From definite to indefinite :**

A lesson always should begin with difinite to indefinite otherwise it will be very difficult for a learner to concentrate on topic with an indefinite matter. One can

always trust the tested or definite and therefore definite things, concepts, events or knowledge may be easily approached for catching the indefinite ones. Definiteness of the known facts in a multiplication table may help a student to acquire the knowledge or skills concerning thousands of odd combinations related to multiplication, division, square or cube roots. Similarly, definite rules of the grammer may help a student learn the concerned language effectively.

■ From simple to complex :

It is always better to begin with the relatively simpler things them to fight with the unncessary difficult and complex ones. Proceeding from simple to complex or easy to difficult always provide an appropriate learning order or sequence. Such properly graded sequence may work as the schedules of automatic reiformcement as the group and understanding of simple ones not only motivates an individual to aspire more and little difficult but also equips him with he understanding and mastery of the difficulty and complex concepts and phenomena in the course of learning.

■ From concrete to abstract :

Abstract is confusing, difficult to understand and may be subjective. One may be easily bored, fatiugued, perplexed and lose one's patience while attending to an abstract phenomenon. It is difficult to be remembered and applied in practical situations. Where as concrete is relatively simple, understanable or objctive. Acquisition of a new knowledge or skill may become a smipler task when it is supported with concrete examples, objects and events. A good teaching should land from concrete to abstract. The concrete material is to be shown, living, examples are to be given and the children should be given maximum opportunities for acquiring direct experiences in order to make them able to learn the abstract concepts and experiences at the later stage.

■ From acutal to representative :

Actual or real objects, a piece of knowledge, principle and theorem are always better then their replica or representative in any process of teaching learing. An on-the-spot experience of the thrills and life of a mountain lake, lonely desert, whistling trees and chattering birds is unmatchable in terms of direct influence and educative value. Visit to an airport is going to have lasting imperssion and clarity in thoughts and concepts in comparison to mere talking about aeroplanes and aerodrome verbally or through illustrative aids. Therefore, a wise teacher should always lead his students from actual phenomenon to the artificial representation.

■ **From particular to general :**

Generalized facts, principles, concepts and phenomena are quite abstract in nature, therefore, should not be presented in the beginning of a teaching. A teacher who begins by saying that matter has weight and then presents particular example or provides demonestrations related with particular solids, liquids or gases is placing horse before the cart. One cannot generalize without facing or acquainting oneself with the particular instances leading to the generalization of the fact or behaviour. Therefore, a teacher should always begin with the learning or experiencing of the particular cases, facts or instances and then persuade his students to generalize or conclude.

■ **From whole to parts :**

Whole is always not only greater than the parts but also more understandable, motivating and effective. Therefore, beginning should always be made with the whole, and then step-by-step its various parts or constituents should be presented before the students. For exaample, in teaching the topic "parts of the flower', the beginning should be made with the actual presentation of the whole flowering plant and then gradually the knoledge of the elements and functioning of the different parts should be presented. Similerly, a model of the water pump and the actual working of this pump should be demonstrated as a whole and then the study and working of its different parts should be taken step-by-step.

■ **From induction to deduction :**

Induction is a way of proving a thing or statement by arguing if it is true for a particular case, and then it should be true for the next similar case, and so on. While employing it in teaching, a teacher is required to place particular instances, examples, facts or experiences before the students. On the basis of similarities of properties and repetition of a phenomenon, the students are thus made to generalize a concept, principle or rule. On the other hand, deducation is the net result of induction.

Here, the beginning is made by placing the generalized fact, principle, formula or rule before the students and then they are asked to verify the truth of the generalization by applying it in particular instances or examples. It is needless to say that all good teaching begins with induction. Knowledge is formative and induction is a way of discovering the knowledge. Deduction is the result of such discoveries. Therefore, a teacher should always proceed from inductin to deduction in his teaching.

■ **From analysis to synthesis :**

Analysis refers to a process of breaking or seperating out a thing into the smipler parts, elements or constituents inorder to understand its structure or composition. It is a sort of operation or investigation that is being carried out to know the hidden aspects of a problem, but causes of an event or behaviour or understanding the complex nature of a thing or phenonmenon.

On the otherhand, synthesis works quite opposite to analysis. It refers to a process of combining the different elements or parts of a thing in totality.

■ **From emperical to rational :**

In a teaching-learning process, it is always safe to begin with what we see, fact and experience than with what we agree, generalize or explain. The former approach is emperical while the latter is rational. Development of the rational point of view is a goal, a result of a process of emperical findings. The concrete facts or emperical evidences are the rock bottom of a consclusion or rational knowledge. The rational thinking is not the product of empty ideas or lofty ideals having no naked truth or concrete happenings. A teacher has to place facts, evidence, direct or indirect experiences, examples and instances full of objectivity and validity to arrive at some conclusion or develop to arrive at a some conclusion or develop a rational point of view in understandig the nature and concepts of the objects, people, events and phenomena. Therefore, in good teaching one shouuld always lead the student from emperical to rational point of view.

■ **From psychological to logical :**

In the process of education psychological principles of learning and teaching are very important points of view to emphasize. Because the modern education is childcentric, so the child is the centre of education; his needs, interests, abilities and capabilites are the deciding factors for the planning and organization of the teachig activities. The instructional goals are made to serve the cause of the child.

The curriculum, teaching strategies, aid material and teaching-learning environment, all are set in view of the psychology of the child and teaching learning But it shoul not mean that a teacher has to go unplanned or move haphazardly in his teaching act. What is to be taught, although based on psychological footing, should

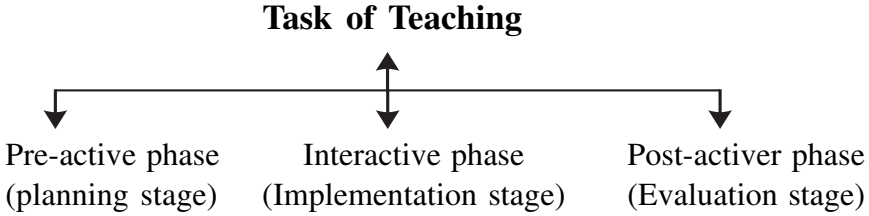
have some logic. The proper organization and sequencing of teaching activites interms of the organizations of learning experiences, teaching strategies, evalutation activities and feedback devices are very much essential for the effectiveness of a teachig act. Therefore, a wise teacher cares for a beautiful integration of psychological principle to logical agreement in his teaching. He is to move on a psychological track, keeping in view the logic behind his sequnece of activities.

3.3.1 Introduction :

Stages of Teaching : The stages of teaching means series of activities that are caried out by a teacher in his act of teaching in real teaching-learning situation. The stages of teaching is aimed to achieve certain teaching objectives. Therefore, teaching as a job of the person called teacher may involve a number of teaching acts or operations which need systematic planning and careful exceution. In doing so, the teaching has progreses in some sequential and organized steps. These steps are known as phases of teaching.

3.3.2 Plan :

Plannng stage is called the pre-active phase of teaching. It is the beginnig of the teaching task. It is very important because a good planning makes the task of the teacher smooth, functionable and successful. There are two major steps involved in the phase, namely



Figure–1, Stages or phases of a teaching task

(i) Establishemnt of some kind of goals or objectives. and (ii) Discovering ways and means to achieve these objectives.

Operations and activities concering the planning phase may be summarized as follows :

1. A logical first step in planning for any teaching is the attempt made by a

teaches for the establishement of certain goals or objectives. Accordingly, he formulates, in detail, the specific instructional or teaching objectives and writes them in a proper way in behavioural terms.

2. How can the stipulated objectives be effectively achieved is a thing to be decided in the second step of the pre-active phase. Consquently, planning is done for taking decisions about the following aspects :

- Choice of the content to be taught or learning expereineces to be given.
- The organization or sequence of the context or material.
- Consideration about the principle and maxims of teaching.
- Decision and planning about the proper use of teaching aids.
- Choice of methods, techinques and stretegies of teaching.
- The duration, place and management of classroom teaching.
- Decisions about the evaluation tools.

3. In short, in the pre-active phase, a teacher has to chalkout the details of his journey that he wants to perform in the classroom along with his students.

3.3.3. Implement :

The second phase of teaching is called the interactive or implementation stage. It is concerned with the implementation and carrying out what has been planned or decided at the planning stage. It is the stage for actual teaching, success or failure of which depends on the degree and quality of the classroom interation between the teacher and pupils. The major activities undertaken in this phase may be grouped as (i) perception, (ii) diagnosic, (iii) reaction processes.

■ **Perception :** Interaction process demands an appropriate perception on the part of teacher as well as students. When a teacher enters the class, his first activity is concerned with a perception of classroom climate. He tries to weigh himself, his abilities and pre-planning for teaching against the classroup. Similarly, the students also try to have a perception of the abilities, behaviour and personality characteristics of the teacher in order to seck desirable interaction in the teaching learning-process.

■ **Diagnosis :** A proper diagnosis of the abilities and behaviour of both students

and the teacher is very essential for the appropriate interaction. A teacher, therefore, tries to asses and diagonse the achievement level of his students with respect to their abilities, academic background, intelligence, interest and aptitude. The diagnosis work analysis done in several ways. He may ask some questions or assess their performances and behaviour potential by providing opportunity for performing or behaving. The students also, through verbal or non-verbal interaction get the opportunity to asses and diagnose the abilities, interest, aptitude and behaviour performance of their own responses and reactions for contributing towards effective interaction in the teaching act.

■ **Reaction processes :** Action-reaction processes play the central role in the task of classroom interaction. For this purpose, a teacher has to take right decisions wih regard to the selection and use of the proper stimuli, schedule of reinforcement and feedback devices, and development of suitable stretegies suiting the needs of the puplis, teching environment and taching objectives. The pupils or learner have also to learn the proper ways of reacting and responding to the various stimuli and teaching techiniques presented to them. In this way, the interactive phase of teaching is responsible for establishing appropriate verbal and non-verbal classroom interaction between the theacher and pupils by arranging suitable teaching-learning activites and on eqully suitalbel and controlled classroom environment.

3.3.4 Evalute :

The third stage of teaching is called post-active phase of teaching. It is concerned with the evaluation activities. First of all, the stipulated objectives are considered and attempts are made to measure or assess the degree or qualities of the expected behavioural changes in the students as result of the teaching activities performed in the interactive phaese. This can be done in a number of ways including tests or quizzes or by observing students reactions to questions, comments, structured or unstractured situation and behaviour situation. The teacher should bring to take right decision about the selection of the appropriate evaluation devices for this purposes. The results of the carried evaluation may be used by the teacher as well as students for bringing desirable improvement in their roles and activities. It may take the folllowing Steps.

1. The suitability of the stipulated objectives may be properly assessed. The extant or quality of their accomplishement makes them take decision about further contribuation, alteration, or improvement.
2. The suitability of the content and its organization may be sugessted. Decisions regarding re-teaching the content or moving to new content may be introduced in the strategies and techniques of teaching.
3. The suitability of the imstructional process, aid material and teaching strategis are evaluated. As a result, change and improvement may be introduced in the strategies and teachniqes of teachings.
4. The role of the classroom environment and learning situations may be evalutated.

Accordingly, the desired changes may be affected in the managemnet of these elements.

In the nutshell, the post-active concering evaluation help the teacher and the students in brining desirable imporvement in their performance by providing necessary corrective feedback.

All the above three phases of teaching, although described seperately, are closely interrelated. They present continuous cycle of the teaching, influencing and directing each others shown in Figure–2.

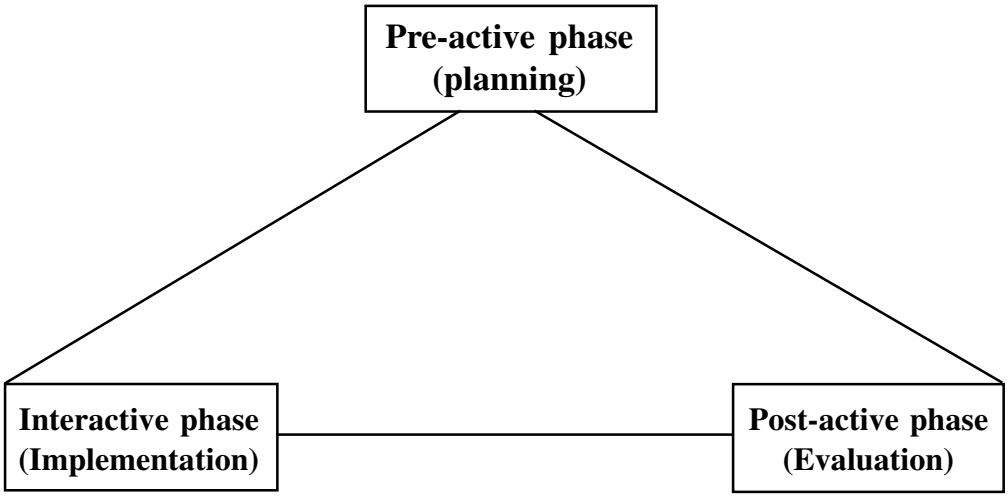


Figure – 2. Interrection among the phases or operations of teaching.

It may help us to conclude that the process of teaching does not confine itself with mere classroom interaction or presentation of the content, teaching material or

learning experiences. A teaching task can never be confined to the face-to-face dialogue between the teacher and the students carried out in the interaction phase. It begins even before the teachers enters the classroom, with the work of planning in teaching tasks, and continues after the interaction stage in the form of evaluation, feedback and similar others post-active activities, many times even after the teacher leaves the class.

3.3.5. Reflect :

In teaching, reflection is very important aspect because using reflection as a basis for improving learnig and teaching. Not only this, the professional standars for teachers, tutors and trainers in the lifeling learning sector state that those working in the sector should value reflection and evaluation of their own practice and their continuing professional development as teachers. In addition, their professional knowledge and unsderstanding includes way to reflect evaluate and use research to develop own practice and to share god practices with others. As part of their professional practice, they should share good practice with others and engage in continuing professional development (CPD) through reflection, evaluation and the appropirate case of research.

In a professional setting, reflection is :

- deliberate
- purposeful;
- structured;
- about linking theory and practice;
- to learning;
- about change and development;

Therefore, reflection is a form of mental processing that we use to fulfil a purpose or to achieve some anticipated outcome. It is applied to gain a better understanding of relatively complicated or unstructured ideas and is largely based on the reprocessing of knowledge, understanding and possibly, emotions that we aleready posses.

Reflection in teaching and learning through diagram.

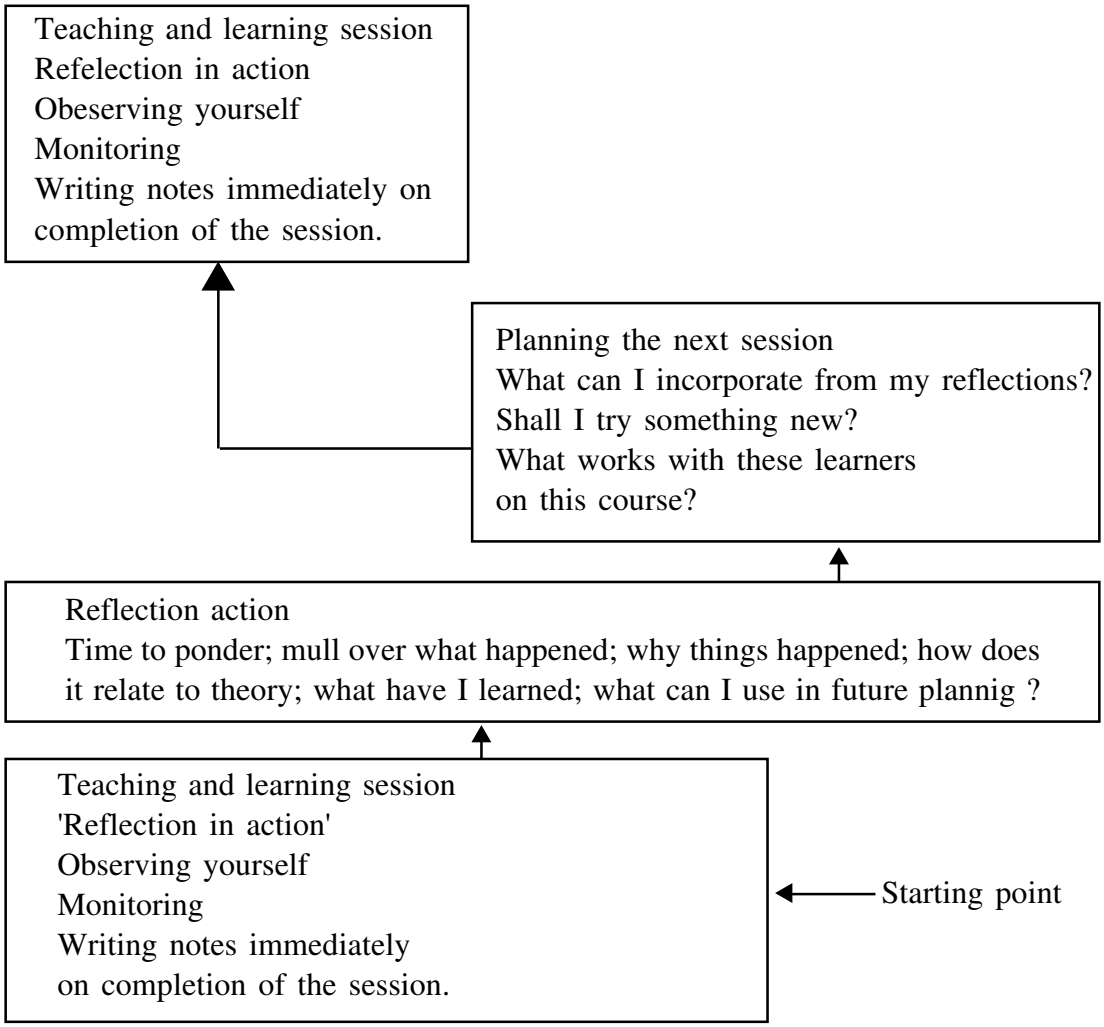


Figure – 3 Using reflection in and on action to improve teaching and learning.

Reflection in teaching practice is very essential because it encourages us to understand over learners and their needs and abilities. Every learner is different and there are likely to be varying interpretations of what we say and do within any group of learners. There are different worlds within our classrooms and skilled teachers will try to see themselves as their students see them. It we practice refelction we can more effectivey encourage learners to reflect on, analyse, evalute and improve their own learning. Reflection can also helps us to develop our emotional intelligence, particalerly if we conculde a consideration of feelings as part of our reflections.

Finally, and most importantly, reflective practice is the key for improvement. If we do not think about, analysis and evalute our professional practice we cannot improve.

3.4.1 Introduction :

Stages of Learning : Learning occupies a very important place in our life. An individual starts learning immediately after his births or in a strict sense even earlier in the womb of the mother. So, lerning is difinitely a vital thing to think about its meachanism and related aspects. It will be very clear if we see some definition of learning.

According to crow and crow (1973), learning is the acquistion of habits, knowledge and attitudes. It involves new ways of doing things, and it operates in an individual's attempts to overcome obstacles or to adjust to new situations. It represents progressive changes in behaviour. It enables him to satisfy interests to attain goals.

According to Hilgard (1958), learning is the process by which an activity originates or is changed through reaching to an encounterd situation, provided that the characteristics of the changes in activity cannot be explained on the basis of native reponse, tendencies, maturation, or temporary states of the organism (e.g fatigue or drugs etc.)

According to the above definitions we may say that learning is a process. As because of process it should have some stages with purpose and goal.

3.4.2 Stages of Learning :

● **Acquisition :** Acquistion refers to the first stage of learning when a response is established. It is the process of acquiring the skill. In classical conditioning, it refers to the period when the stimulus comes to evoke the conditioned reponse. Consider Pavlov's classical experiment with dogs. By associating the presentation of food with the sound of a tone, Pavlov was able to condition the dogs to saliavate to the sound. The phase in which the dogs began to salivate to the sound is the acquisition period.

● **How does to work ? How does acquistion occur?**

In classical conditioning, repeated pairing of the conditioned stimulus (CS) and uncondtioned stimulus (UCS) eventually leads to acquisition. Remember, the unconditioned stimulus is one that naturally evokes the unconditioned response (UCR).

After pairing to (UCS) with the UCS repeatedly, the CS alone will come to elicit the response, which is now known as the conditioned response (CR).

During acquistion, the conditioned stimulus and unconditioned stimulus are repeatedly paired to creatge an association. Multiple pairing are required, but the number of trials needed can vary depending on what is being learned.

For example, imagine that you are teaching a dog to fear the sound of a rattle-snake. This type of learning will occur much more quickly since the animal may already be primed to form such an association. As a result, the acquisition will happen much faster than if you are teachng your dog to play dead. The strength of the conditioned response will continue to increase up to a certain point before it begins to level off.

Once the association between the CS and UCS has been established, the response is said to have been acquired. At this point, the behaviour is still often reinforced to strengthen the association.

❑ What factors influnce acquisition ?

A number of factors can affect how quickly acquisition occures. First, the salient feature of the conditioned stimulus can play on important role. If the CS is too subtle, the learner may not notice it enough for it to become associated with the unconditioned stimulus. Stimulus that are more noticeable usually lead to faster acquistion.

For example, if you are training a dog to salivate to a sound, acquistion will be more likely if the sound is noticeble and unexpected. The sound of a bell will produce a better result than a quite tone or a neutral sound that the animal hears regularly.

Secondly, timing plays a critical role. If there is too much of a delay between presentation of the conditoned stimulus and the unconditioned stimulus, the learner might not form an association between the two. The most effective approach is to present the CS and then quickly introduce the UCS so that there is an oeverlap between the two. As a rule, the greater the delay between the UCS and the CS, the longer time will be needed for acquisition.

3.4.4 Maintenance :

Maintenance is very important aspect of learning. The fundamental aim of maintainance in learning is retentation of skills. It tries to maintian high level of

performance over the time after reinforcement ends. It is necessary in order to build on the skills learned.

3.4.3 Generalization :

'Generalization' refers to the ability of an organism dealing with the perception of and response to similar stimuli. A child demonstrates this ability when he successfully subtracts four apples from nine apples after learning to subtract four oranges from nine oranges. In this way, generalization may be understood in terms of a learning process when the organism learns to provide similar operant responses, to stimuli similar to but not the same as the training stimulus. In helping the children to learn appropriate generalization due care should be taken by he parents and teachers to reinforce the behaviour of the children only after they demonstrate the ability to generalize correctly. Over generalization like calling all four legged animls as cows should be immediately discouraged and they should be helped to learn correct generalization and discrimination for acquiring the proper concept of things and events surrounding them.

3.5.1 Introduction :

Learning Environment : The term "learning environment" suggests place and space—a school, a classroom, a libarary. And indeed, learning takes place in physical location like these. But in today's interconnected can be virtual, online, remote; in other words, it does not have to be a place at all. Perhaps a better way to think of 21st century learning environments is as the support systems that accommodate the unique learning needs of every learner and support the positive human relationships needed for effective learning. Learning environments are the structures, tools and communities that inspire students and educators to attain the knowledge and skills.

3.5.2. Physical Learning Environment :

A question definitely will come before setting up a building of an educational institution that what should be the physical learning environemt. Studies about student academic achievement and building condition conclude that the quality of physical environment significantly affects student achievement, desirable designs include having 'friendly and agreeable' entrance areas, supervised private place for students as well

as public spaces that fosters a sense of community, with perticular attention to the colour used.

- Physical environemnt refers to the level of upkeeping ambient noise, lighting, indoor, air quality and thermal comfort of the building and its location within the community. The physical environment of the school speaks to the contribution that safe, clean and comfortable surrounding make to a positive school climate in which students can learn.
- A well-maintained and safe physical enviroment fosters students' ability to learn, to show improved achievement scores, and to exhibit appropriate behaviour.
- Creating a positive environment is necessary in order for teachers to teach effectively and for students to be recceptive to learning. Facilities in good conditions, including low noise levels, cleanliness, access to clean air and water and absence of overcrowding are not only conductive to learning, but essential for students and staff overall health and wel-being.
- Dilapidated school building contribute to teacher dispair and frustration, while building renovations can lead teachers to feel a renewed sense of hope and commitment. Overcrowding and heavy teachers workloads create stressfull working conditons for teacher and lead to higher teacher absenteism. Crowded clsssroom conditions limit the amount of time teachers can spend on innovative teaching methods and result in a constant struggle to simply maintain order. Thus the likelihood increase that teachers suffer from burnout earlier then might otherwise be the case.
- While the condition of school building and grounds are important, the neighborhoods surrounding our nation's schools are not isolated from exerting influence. The condition of a school's neighbourhood exerts a substantial influence on the school as well as the students it serves. Thus schools often inherit the difficulties present in their surrounding neighbourhoods. The condtions of a school often reflects the surrounding negihbourhood's condition. For example, schools with trash on the floors are more likely to be located in neighborhood where littres and trash are prevalent; schools in which graffiti is evident are more likely to be in neighborhood with graffti; and schools with broken windows are more likely to be located in neighborhoods in poor condition.

Though, there is a plethora of research that examines effect of the physical conditions of teaching spaces (which includes seating, furnishings, spatial density, privacy, noise, climate and thermal control, air quality, windowless classroom,

vandalism and play-yards, light and colour) on student's engagement, attainment, attendance and well-being.

Besides these, educational institutes and classrooms can be more than a place to inhibit. They can also acquire an emotional significance. One perspective is that educators play an importnat role in constructing classrooms and schools, and therefore, students identities. An extension of this idea is that children's environment have an effect on their cognitive and behavioural development and on childhood vulnarability.

3.5.3 Psychological Learning Environment :

All most all of us have spent a great deal of time in the classroom, begining in kindergarten and extending for years beyond. Have you ever noticed what the teacher did to make learning more inviting? Was it colourful posters, clear and consistent rules, and fun and interesting teaching methods? If so, you were lucky to have a teacher who paid close attention to the learning environment, or the physical, psychological and instructional atmosphere.

From the above discourse, it is obvious fact that learning environment is vital to student success and impacts students in many ways. A negative learning environment, adversely affects students learnng, like low student achievement, poor behaviour, student anxiety, or depression, where as a postive learning environment that allows students to feel comfortable and confident as learners.

The psychological learning environment refers positive learning enviroment. It is like how students feel about their learning. The psychologically motivated learner can promote their learning both intellectually and socially. The teacher should have positive control over the classroom be being a role model for kind words and actions.

Because we know that students reacts negatively when they feel things are unfair, unclear or are worried about getting in trouble due to negative attitude of teachers. On the otherhand while a teacher is clear about instruction and consistent, offers praise and gratitude, and sets a good example, then students are confident and comfortable in the classroom.

❑ The importance of Motivation on Educational Environement :

Motivation is described as a state that energizes, directs and sustains behaviour. Motivations involves goals and require activity. Goals provide the impetus for and the direction of action while action entails effort, persistence in order to sustain

activity for a long period of time. There are recognized indices of motivation that are important to be aware of. Indices typically place a value or quantity on an idea; in this case, we can understand the value or quantify of motivation for an individual by these four indices.

The selection of a task under-free-choice conditions indicates motivation to perform the task, to engage in art activities during free time. This is indicative of being motivated by art and art-type activities.

High effort levels, especially when working on different tasks and assignments, are also indicative of motivation. For example, if a student diligently works on a difficult algebra problem again and again this would indicate a higher level of motivation towards math activities.

High effort levels, especially when working on different tasks and assignments are also indicative of motivation. For example, a student in physical education class, was enable to master jumping rope, but he chooses to continue trying to jump rope during recess; this time on task indicates a high level of motivation toward that mastering the activity of jumping rope.

Finally, level of achievement is affected by choice, effort and persistence. The higher these indices, the higher the motivation and the more like task achievement will occur. In the classroom, educators should be aware of these indexes in an effort to reinforce activities and interests that students already show an existing partiality for. There is an actual term for this—it is called situational motivation. Situational motivation is a phenomenon in which aspects of the immediate environment enhance motivation to learn particular things or behave in particular ways. Educators can do many things to create a classroom enviroment that motivates students to learn and behave in ways that promote their long-term success.

❑ How motivation Affects Learning & Behaviour :

Motivation has several effects on students learning and behaviour.

First : motivation directs behaviour towards particular—goals. Motivation determines the specific goals toward which people strive, thus it affects the choices student make. For example, whether to enroll in an art class or physical education class, whether to attend a school basketball game during the week or complete an assignment that's due to next day.

2nd : Motivation also leads to increase effort and energy. Motivation determines

whether a student will pursue a task (even a difficult one) with enthusiasm or a lackluster attitude.

3rd : Motivation increases the initiation and persistence of activities. In our first example, Erik continued with art-type activities in his free time and he also tried to perform these type of activities in relations to his other assignments. Motivation will increase students time on task and is also an important factor affecting their learning and achievement.

4th : Motivation enhances cognitive processing. Motivation actually affects what and how information is processessed because motivated students are more likely to pay attention and try to understand the meterial instead of simply going through the motions of learning in a superfical manner.

5th : Motivaion determines what consequences are reinforcing and punishing. For example : student with a high level of motivation for classroom achievement and high GPAs are reinforced by receiving a grade of "A" and they will feel punished if they receive a grade of "F".

Finally, motivation lends to improve performance. Everythig that we have just discussed—effort, initiation, persistence, cognitive processing and the impact of consequences—lead to improve performance.

❑ The importance of Attention in a Learning Environment :

All learning takes place in a physical environment with quantifiable and preceptible physical characteristics. Whether sitting in a large lecture hall underneath a tree or in front of a computer screen, students are engulfed by environmental information. Sepcific targets within the environemt draw the student's attention, such as armchairs, scarves, and teacups and they continuously monitor the ambient properties such as the light of the lamps, the smell of the kettle, and the warmth of the fire. In any learning environment students are in enviromental information, only a small fraction of which constitutes the sights and sounds of instructions. So, learning enviroment should be arranged according to the psychological aspect for better attention of learner.

❑ The importance of Emotion in a Learning Environment :

Emotional attachment is very much related with learning and teaching. The physical characteristics of learnig environments can affect learners emotionally, with important cognitive and behavioural consequences. For exmaple, most students

probably find learnig difficulty in a classroom that is stiflingly warm. It may become a place where student love to learn, a place they seek out when they wish to learn, and a place they remember fondly when they reflect on their learning experiences.

In any learning environment, physical charateristics that cause discomfort can be expected to interfere with learning; environment that produce positive emotional states can be expected to facilitate learning and the development of place attachment.

Beyond the physical arrangment of a classroom a psychological environment is also created, based on the interaction of key players in the classroom, namely students and teachers.

Many teachers equate student engagement and on task behaviour with classroom participation, typically a top concern for teachers. The notion of feeling supported as students has also been extensively examinend in the classroom environment literature. Helne Patrick et.al. (Partic, Ryan, & Kap (Cass 2007) found that there is a strong, positive relationship between students level of motivation and engagemnt and their perceptions of the classroom environment as being socially supportive. The perception of a climate of mutual respect is required in order for students to increase their use of effective study strategies and increse feelings of confidence about their ability to successfully complete assignments. Furthermore, when students perceive that they receive emotional support and encouragement from their teachers and academic support from their peers they are more likely to be on task in the classroom and use self-regulated strategies.

3.6.1. Introduction :

■ Leadership Role of Teacher :

The notion of teacher leadership is not new, but recently it has been transformed. In the past, teacher leadership limited in scope and established at the prerogative of school administrators. Teachers have served long as team department chairs, association leaders and curriculum developers. In these roles teachers have often served as rather than “leaders” who enact change. In addition, leadership roles for teachers have traditional flexibility and required a lengthy, ongoing commitment of time and energy. Often the decision to take on leadership accompanied by a decision to get out of teaching and into administration. Recently, reports on the status of teacher education have issued strong and compelling pleas for dramatically different teachers and increased professional development. While recognizing the centrality reports emphasize

the need for teachers to extend their sphere of influence beyond the classroom and into school wide activities. Advocacy for teacher professionalism and expanded leadership roles is based on the understanding that teachers, have daily contacts with learners, are in the best position to make critical decisions about curriculum and instruction are better able to implement changes in a comprehensive and continuous manner to expand teacher roles is also motivated by an ongoing need to attract and retain qualified teachers.

■ What is Teacher Leadership?

Teachers typically define career satisfaction in terms of their ability to be of service to others and make a difference among their students. Similarly, the leadership considerations of teachers are grounded in their improvement in the quality of teaching and learning for all students. Studies have shown that teachers do not subscribe definitions of leadership as "higher" or "superior" positions within the organizational hierarchy but view leadership as a collaborative effort, a "banding together" with other teachers to promote professional development and the improvement of educational services.

Today, leadership roles have begun to emerge and promise real opportunities for teachers to impact educational apportunities necessarily leaving the classroom. Teachers are now serving as research colleagues, working as advisor-mentors and facilitating professional development activities as master teachers. Teachers also act as members of school-teams, instructional support teams and leaders of change efforts. In addition, teachers are forging new and unique leadership roles through their own initiative by developing and implementing programs they personally result in positive change.

■ Teacher Leadership Role in Today's Perspective:

Expectations about the performance of education leaders have changed and expanded considerably in the last decade, extending far beyond the traditional definitions of administrative roles. Responsibilities of education leaders now exceed what individual administrators in educational institutions can be expected to carry out alone. In today's requirements to increase student learning necessitate a shift in leadership, from managing orderly environments in which teachers work autonomously in their classrooms to one in which administrators, teachers, and others share leadership roles and responsibilities for student learning. Today more than ever, a number of interconnected factors argue for the necessity of teacher leadership in schools. Teaching

is a flat profession. In most professions, as the practitioner gains experience, he or she has the opportunity to exercise greater responsibility and assume more significant challenges. This is not true of teaching. The 20- year veteran's responsibilities are essentially the same as those of the newly vecruited novice. In many settings, the only way for a teacher to extend his or her influence is to become an administrator. Many teachers recognize that this is not the right avenue for them. The job of an administrator entails work that does not interest them, but they still have the urge to exercise wider influence in their schools and in the profession. This desire for greater responsibility, if left unfulfilled, can lead to frustration and even cynicism. Teachers' tenure in schools is longer than that of administrators. In many settings, administrators remain in their positions for only three to four years, whereas teachers stay far longer. Teachers often hold the institutional memory; they are the custodians of the school culture. School that want to improve make a wise investment when they cultivate and encourage teacher leaders, because they are in a position to take the long view and carry out long-range projects.

■ Qualities and Skills of Teacher Leaders:

Teacher leaders serve in two fundamental types of roles: formal and informal. Formal teacher leaders fill such roles as department chair, master teacher, or instructional coach. These individuals typically apply for their positions and are chosen through a selection process. Ideally, they also receive training for their new responsibilities. Formal teacher leaders play vital roles in most schools. In many cases, these teacher leaders manage curriculum projects, facilitate teacher study groups, provide workshops, and order materials. They may also evaluate other teachers, in which case their colleagues are likely to regard them as pseudo administrators. Informal teacher leaders, in contrast, emerge spontaneously and organically from the teacher ranks. Instead of being selected, they take the initiative to address a problem or institute a new program. They have no positional authority; their influence stems from the respect they command from their colleagues through their expertise and practice.

Whether they are selected for a formal leadership role or spontaneously assume an informal role, effective teacher leaders exhibit important skills, values, and dispositions. Teacher leaders call others to action and energize them with the aim of improving teaching and learning. A hallmark of leadership, therefore, is the ability to collaborate with others. Teacher leaders must enlist colleagues to support their vision, build consensus among diverse groups of educators, and convince others of

the importance of what they are proposing and the feasibility of their general plan for improvement. They must be respected for their own instructional skills. They also understand evidence and information and recognize the need to focus on those aspects of the school's program that will yield important gains in student learning. A number of values and dispositions make certain individuals ideally suited for teacher leadership. Effective teacher leaders are open-minded and respectful of others' views. They display optimism and enthusiasm, confidence and decisiveness. They persevere and do not permit setbacks to derail an important initiative they are pursuing. On the other hand, they are flexible and willing to try a different approach if the first effort runs into roadblocks. Many attributes of good teacher leaders are fundamentally the same as the attributes of good teachers: persuasiveness, open-mindedness, flexibility, confidence, and expertise in their fields. Despite these similarities, however, working with colleagues is profoundly different from working with students, and the skills that teachers learn in their preparation programs do not necessarily prepare them to extend their leadership beyond their own classrooms. To assume a leadership role, they may need expertise in curriculum planning, assessment design, data analysis, and the like. They may also need to develop the abilities to listen actively, facilitate meetings, keep a group discussion on track, decide on a course of action, and monitor progress. These skills are not typically taught in teacher preparation programs.

Not every school is hospitable to the emergence of teacher leaders, particularly informal teacher leaders. The school administrator plays a crucial role in fostering the conditions that facilitate teacher leadership, including the following:

■ A safe environment for risk taking

Teachers must be confident that administrators and other teachers will not criticize them for expressing ideas that might seem unusual at first. Some of the most effective approaches to solving difficult issues in schools may not be intuitively obvious but may require that educators think creatively, which can only happen in a safe environment. School administrators should make it clear that teachers are safe to express ideas and take professional risks.

■ Administrators who encourage teacher leaders

Administrators' commitment to cultivating teacher leaders plays an essential role in their development. Administrators must be proactive in helping teachers acquire the skills they need to take advantage of opportunities for leadership (data analysis,

meeting facilitation, and so on). Unfortunately, some administrators jealously guard their turf, apparently fearing that ambitious teacher leaders will somehow undermine their own authority. In fact, one of the enduring paradoxes of leadership is that the more an administrator shares power, the more authority he or she gains.

■ Opportunities to learn leadership skill :

As noted earlier, the skills required for teacher leadership are not part of the preparation program for most teachers. If teacher leaders are to emerge and make their full contribution, they need opportunities to learn the necessary skills of curriculum planning, instructional improvement, assessment design, collaboration, and facilitation. Teachers can learn these skills through school-level professional development, of course, but they may also build these skills through district wide or university-based courses and seminars. Whatever the source, the opportunities must be available and sufficiently convenient for teachers to take advantage of them.

■ The Need for Teacher Leadership:

Teacher leadership is an idea whose time has come. The unprecedented demands being placed on schools today require leadership at every level. Yet many schools are still organized as though all the important decisions are made by administrators and carried out by teachers. In the most successful schools, teachers supported by administrators take initiative to improve school wide policies and programs, teaching and learning, and communication. By understanding the phenomenon of teacher leadership and helping teachers develop the skills required to act as leaders, we will improve schools and help teachers realize their full potential.

3.6.2. Leadership Role of Teacher in Classroom:

A classroom is a group of learners. Generally speaking, learning groups have at least two basic objectives:

- to complete learning tasks;
- to maintain positive and effective relationships among group members.

Leadership consists of actions that help the group to complete its tasks successfully and maintain effective working relationships among its members. For any group to be successful, both task-leadership actions and group maintenance-leadership actions have to be provided. It is important to note that a) any member of a group may become a leader by taking these necessary actions (i.e., the teacher is not necessarily

the leader), and b) the various leadership actions may be provided by different group members.

Teachers should know that, generally, groups function most effectively when leadership tasks are shared among group members. However, most students are accustomed to being in classes where the teacher plays all of the leadership roles; if you want students to play some of these roles, you must give them permission to do so, and perhaps provide guidance how to best take on these roles. When teachers neglect leadership and do not provide leadership themselves or invite students to take on leadership roles, students may themselves elect to play informal (and frequently inappropriate) leadership roles in the classroom, simply to pull the individuals together as a group.

Leadership is a set of skills that anyone can acquire. Responsible leadership depends upon

- flexible behaviour;
- the ability to diagnose what behaviours are needed at a particular time in order for the group to function most efficiently; and
- the ability to fulfil these behaviours or to get other members to fulfil them.

To participate effectively in a group, especially in a leadership role, one must be able to :

■ Communicate

Communication is the first step in cooperating with others. There are two basic categories of skills - sending and receiving. Some essential skills are the ability to:

- Clearly and unambiguously communicate ideas and feelings.
- Make messages complete and specific.
- Make verbal and nonverbal messages congruent with each other.
- Ask for feedback concerning the way in which your messages are received.
- Display openness, and maintain eye contact.
- Listen without response until the other person has sent a full message.
- Paraphrase accurately and non evaluative the essence of the sender's message.
- Listen beyond words - that is to be aware of nonverbal messages and behavior

- Listen for requests and intentions in others' messages, particularly in complaint

These skills are ones well knonw to teachers as important classroom skills. They are skills needed by and leader, in any situation.

■ Build and Maintain Trust :

Acceptance and support are essential in building and maintaining trust. Acceptance is communicating to others that you have high regard for them. Support is communicating to others that you recognize their strengths and believe they are capable of productively managing their situation. Underlying all significant learning is the element of trust. Stephen Brookfield (1990) proposes that those playing the role of teacher in a learning group must pay attention to the balance between two important characteristics that make teachers more trustworthy in students' eyes: credibility and authenticity.

■ Manage Conflict

Since participation in a group will inevitably produce some conflicts, it is essential that members of learning groups have the skills required for managing controversies constructively, including the ability to:

- Understand the point-of-view of another person in the group.
- Approach controversy from a problem-solving perspective. First, explore all differences. Then, look for ways to integrate ideas. Recognize the legitimacy of different ideas and viewpoints and search for a solution that accommodates the needs of all group members.
- Be critical of ideas, not persons.
- When large societal problems are being played out in the classroom, keep returning to the course "text1 whenever possible—how can it help members of the learning group make sense of the conflict they are experiencing?

■ The extended Role of a Teacher in the Classroom Situation:

- Facilitates the collection, analysis, and use of classroom- and school-based data to identify opportunities to improve curriculum, instruction, assessment, school organization, and school culture.
- Engages in reflective dialogue with colleagues based on observation of instruction, student work, and assessment data and helps make connections to research-based effective practices.

- Supports colleagues' individual and collective reflection and professional growth by serving in roles such as mentor, coach, and content facilitator.
- Serves as a team leader to harness the skills, expertise, and knowledge of colleagues to address curricular expectations and student learning needs.
- Uses knowledge of existing and emerging technologies to guide colleagues in helping students skilfully and appropriately navigate the universe of knowledge available on the Internet, use social media to promote collaborative learning, and connect with people and resources around the globe.
- Promotes instructional strategies that address issues of diversity and equity in the classroom and ensures that individual student learning needs remain the central focus of instruction.

■ The specific functions of a teacher leader in the classroom:

- He has leadership qualities to perform different activities (pre-active, interactive and post active functions) in a classroom.
- He guides the instructional process.
- He plans and organizes the curricular and co-curricular programmes.
- He selects the appropriate teaching strategy.
- He prepares lessons plans, assignments and teaching aids, etc.
- He creates an appropriate classroom climate for better learning.
- He provides motivation and positive reinforcement.
- He gets feedback from students and evaluates their learning.
- He communicates with parents if necessary.
- He maintains the cumulative records.
- He organizes tutorials classes.
- He maintains inter-personal relations.
- He performs leadership role in co-curricular and extra-curricular activities and sets the tone of the schools.

From the above discussion, it may be concluded that teacher is not only confined within the role of teaching itself but perform as a leader as well as facilitator to

continue the instructional activities as better in the classroom situation. Because the teacher understand the principles of learning and knows how to develop a collaborative culture of collective responsibility in the classroom. The teacher uses this knowledge to promote an environment of collegiality, trust, and respect that focuses on continuous improvement in instruction and student learning. Therefore, a teacher not only performs as a role of leader but he is a friend, philosopher and guide in the classroom situation.

3.6.3. Leadership Role of Teachers in School :

Leadership by teachers is essential to serving the needs of students, schools and the teaching profession. The teacher leadership as a vehicle to transform schools for the needs of the 21st century. The teacher leadership can be used to guide the preparation of experienced teachers to assume leadership roles such as resource providers, instructional specialists, and curriculum specialists, classroom supporters, learning facilitators, mentors and school team leaders. Leadership is the process of guiding and directing the behaviour of others to work enthusiastically toward achieving set objectives. A group flourish as a result of the efficient leadership. A school in the able hands of a headmaster can make tremendous progress. Leadership requires specific characteristics, which an effective leadership must possess.

■ Leadership of teacher must have the following qualities, characteristics and skills:

- He should be an able administrator in organizing the varied programmes of his institution with active cooperation of other members working under them.
- He must be known for his human relations. He must be kind, courteous and friendly. He must understand the problems of others and take steps to solve them.
- He should be a scholar. He should try to keep himself up to date with the knowledge of his profession and other allied problems.
- He should be democratic in outlook. He should also be the practitioner of the democratic principles.
- He should also be disciplined man. Self - confidence is a must for him.
- He should be really a model to others by his good words and deeds.
- He should enjoy an influential personality so as to execute the various policies and programmes of the institutions with cooperation from others.

- As a supervisor he must be constructive and creative.

■ The Function of Teacher as a Leader in School :

- Collaborates with colleagues and school administrators to plan professional learning that is team-based, job-embedded, sustained over time, aligned with content standards, and linked to school/district improvement goals.
- Uses information about adult learning to respond to the diverse learning needs of colleagues by identifying, promoting, and facilitating varied and differentiated professional learning.
- Facilitates professional learning among colleagues.
- Identifies and uses appropriate technologies to promote collaborative and differentiated professional learning.
- Works with colleagues to collect, analyze, and disseminate data related to the quality of professional learning and its effect on teaching and student learning.
- Advocates for sufficient preparation, time, and support for colleagues to work in teams to engage in job-embedded professional learning.
- Provides constructive feedback to colleagues to strengthen teaching practice and improve student learning, and
- Uses information about emerging education, economic, and social trends in planning and facilitating professional learning.

3.6.4 Leadership Role of Teacher in Community :

The teacher leader understands that families, cultures, and communities have a significant impact on educational processes and student learning. The teacher leader works with colleagues to promote ongoing systematic collaboration with families, community members, business and community leaders, and other stakeholders to improve the educational system and expand opportunities for student learning. Teachers interact with parents, students mid other teachers regularly, affecting the lives of their students daily. In addition to the classes they teach, instructors often find themselves involved in many community projects and serving the community at large as leaders. They also regularly take leadership positions within their school districts, communities of teachers, parent-teacher organizations, and professional teacher organizations and teachers associations.

■ Functions of the teacher leader in community:

- Uses knowledge and understanding of the different backgrounds, ethnicities, cultures, and languages in the school community to promote effective interactions among colleagues, families, and the larger community.
- Teaches effective communication and collaboration skills with families and other stakeholders focused on attaining equitable achievement for students of all backgrounds and circumstances.
- Facilitates colleagues' self-examination of their own understandings of community culture and diversity and how they can develop culturally responsive strategies to enrich the educational experiences of students and achieve high levels of learning for all students.
- Develops a shared understanding among colleagues of the diverse educational needs of families and the community.
- Collaborates with families, communities, and colleagues to develop comprehensive strategies to address the diverse educational needs of families and the community.

■ The Roles of a Teacher as a Community Leader:

• Local Government

Teachers are active members of their local government and are regularly involved as leaders in the government, through running for the city council of their cities and towns and sitting on commissions and local government committees. Within the school setting, teachers encourage their students and colleagues to become involved in their local politics and to create positive change in the community at large.

• Political Action

Teachers often take leadership roles for current political events affecting their lives, communities and school. When a bill dealing with schools and teachers is presented in Legislative Assembly, teachers mobilize to show their support for the bill. The leaders of many teachers' political action groups were teachers in the classroom at one time.

• Advisory Boards

Teachers regularly sit on the boards of and are involved in community organizations and nonprofits centres such as the Red Cross, Salvation Army and Boys and Girls

Clubs etc. Their direct involvement in. the leadership of community organizations allows teachers to help change the lives of students outside of the classroom.

■ The Roles of a Teacher outside the Classroom

A teacher has a very diverse role within the educational environment. In the classroom she must be an instructor, critic, disciplinarian, motivator, role model and adviser. However, a teacher's job can expand to include other roles outside the classroom. Many teachers assume roles outside of the classroom to facilitate the development of a good rapport or for other reasons. Roles for a teacher outside of the instructional environment include: coach, club sponsor, tutor and counsellor.

• Teacher as a Counsellor

Most schools employ counsellors to address non-instructional issues and problems that impact a student's progress through school. However, many teachers end up serving as counsellors to their students. Usually this is because a student feels more comfortable confiding in a teacher with whom she already has a rapport than the school counsellor. Since teachers interact on a daily basis with students, they may be the first to recognize a student's problem.

• Teacher as a Tutor

In the light of increased emphasis on schools meeting minimum state and federal performance standards, many schools pay teachers for after-school tutoring. Teachers may agree to serve as after-school tutors to supplement their income or to provide additional instruction so that their students will pass standardized tests. After-school tutoring increases the likelihood that the students will succeed and also increases a teacher's class pass rate. After-school tutoring helps the student and the teacher.

3.7.1. Let Us Sum up

The learning may be happened in both formal and informal way. When learning is concerned with formal way in the field of education a number of generalized notions, ideas, work mode and practices that can be properly employed for getting desired success in the tasks of teaching. In the language of educational psychology, these are referred to as maxims of teaching. The notable among them are: proceeding from known to unknown, from defiant to indefinite, from simple to complex, from

concrete to abstract, from actual to representation, from particular to general, from whole to parts, from analysis to synthesis, from empirical to rational, and fro psychological to logical.

In the class room situation when teaching is organized it maintains some basic steps. These steps or stages are known as the stages or phase of teaching. In general, a teaching task involve four such stages of phase, namely planning stage is also known as preactive phase, implement stage is known as interactive and evaluation and reflection stages are known as p o stactive phase of teaching. It is a sequential process which begins with planning and ended with evaluation as well as reflection.

The behaviour of an individual is changed through direct or indirect experiences. This change in behaviour brought about by experiences is commonly known as learning. In the class room situation, it happens with some specific steps are known as acquisition, maintenance and generalization. In the process of acquisition the skill and knowledge are acquired through the direct instruction. The aim is accuracy of response. In the maintenance where learner retains accuracy and fluency....periodically evaluates and when necessary reinforce. Aim is retention of the skill. In the generalization, transfers skill to new situations and settings provide direct instruction in alternate setting when fails to generalize program for generalization. Aim is expansion of the skill across situations, behaviours and time.

The learning environment means surrounding or atmosphere of learning where learning can take place such as a school, a class room, a library, etc. The learning environment may be different types but mainly we are concerned with physical and psychological learning environment. The physical learning environment consists of infrastructure such as building and available facilities as per requirements where as psychological learning environment refers positive learning environment where learner can promote their learning both intellectually and socially.

Like other fields, in education leadership role is pivotal factor to continue the whole process of teaching, learning, evaluation, management and administration of education. In education leadership means teachers leading power or role of a teacher as a leader with desired goals and objectives to fulfil. Leadership by teachers is essential to serving the needs of students, schools and the teaching profession. The teacher leadership as a vehicle to transform schools for the needs of the 21st century. The teacher leadership can be used to guide the preparation of experienced teachers to assume leadership roles such as resource providers, instructional specialists, and

curriculum specialists, classroom supporters, learning facilitators, mentors and school team leaders.

3.8.1. Check Your Progess :

1. What is the maxim of teaching?

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2. Explain at least four maxim of teaching with example?

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3. Mention the four names of stages of teaching.

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4. Why planning is important before beginning the lesson ? Define with your own language.

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5. Describe various stages of learning.

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6. What do you understand by learning environment?

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7. Discuss in brief the importance of psychological environment for effective teaching and leraning.

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8. Discuss in brief the importance of physical environment for effective teaching and learning.

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9. What do you mean by leadership ?

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10. What kinds of leadership role are played by teacher in the classroom, school and community ?

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3.9.1. Reference :

1. Bhatia, K.K. and J.N. Arora, Methodology of Teaching, Ludhina: Prakash Brothers, 1967.
2. Bloom, B.S., All our Children Learning, New York: McGraw- Hill, 1981. Knirk. R.G. and Chailds, w. John, General Method of Effective Teaching-Practical Approach, New York: Thomas Y. Browell, 1973.
3. Johnson, D.W. & Johnson, R.T. (1991). Learning together and alone. Englewood Cliffs, NJ: Prentice-Hall.
4. Carnegie Forum on Education and the Economy. (1986). A nation prepared: Teachers for the twenty-first century: Carnegie Forum on Education and The Economy's Task Force on Teaching as a Profession.
5. Washington, Devaney, K. (1987). The lead teacher: Ways to begin. New York: Carnegie Forum on Education and the Economy.
6. Dierks, K., Dillard, S., McElliot, K., Morgan, J., Schultz, B., Tipps, L., & Wallentine, K. (1988). Teacher leadership: challenge. Seattle: University of Washington, Puget Sound, Educational Consortium.
7. Fay, C. (1992). Empowerment through leadership: In the teachers' voice. In C. Livingston (Ed.), Teachers as leaders: roles. NEA School Restructuring Series. Washington, DC: National Education Association.
8. Hart, A. (1990). Impacts of the school social unit on teacher authority during work redesign.
9. Hargreaves, A.(1993), Collaboration: A key to Leadership for quality in education. The Practicing Administrator.

Unit 4 ❐ Over view of Assessment and School System

Structure

4.1.1. Introduction:

Assessment is the process of gathering and discussing information from multiple and diverse sources in order to develop a deep understanding of what students know, understand and can do with their knowledge as a result of their educational experiences.

Assessment is indispensable component of curriculum practices in the school system. In system of education, one of the prime considerations of administrators, teachers and students alike are the outcomes of learning, what ability students can demonstrates because of increase in their knowledge and changes in understanding because of experience in school. In this aspect, Van Den Akker (2003) describes assessment as essential component of the curriculum practice, So, it may be said that assessment is a process for obtaining information in curriculum operation in order to make decisions about students learning, curriculum, and programme and on educational policy matters.

4.1.2. Objectives:

Upon completion of the sub-unit, the student learners will be able to —

- ❖ Understand the conventional meaning and constructivist perspective of assessment.
- ❖ Identify the meaning and differences of assessment of learning and assessment for learning.
- ❖ Critically analyse, comparing and contrasting assessment, evaluation, measurement, test and examination,
- ❖ Explain formative and summative evaluation and curriculum based measurement. Elucidate key concepts in school evaluation such as filtering learners, marks, credit, grade, choice, alternate certifications, transparency, internal- external proportion, improvement option.

4.1.3. Conventional Meaning and Constructivist Perspective of Assessment.

Conventional Meaning of Assessment: Conventional, more traditional, assessment tools evaluate what skills students can perform with success. They are generally knowledge-based, versus hands-on or performance-based. Assessment is one of the most significant areas of an educational system. Assessment in education is mainly associated with the growth of learning of the students. How much learning experience a student has acquired at a particular point of time against the expected learning outcomes? What are the strengths and weaknesses of a learner in the stipulated area of learning? To what extent the results of assessment can be helpful in strengthening the learning? These are some of the usual questions associated with educational assessment.

It defines what students take to be important, how they spend much of their academic time and in many ways how they value themselves. According to Rowntree, “if we wish to discover the truth about an educational system, we must look to its assessment procedures”. In addition, assessment is important because students cannot avoid it, as Boud says.

Rowntree suggests that assessment procedures offer answers to the following questions :

1. What student's qualities and achievements are actively valued and rewarded by the system?
2. How are its purposes and intentions realized?
3. To what extent are the hopes and ideals, aims, and objectives professed by the system ever truly perceived, valued and striven for by those who make their way within it?

From the above discussion it may be stated that assessment has two main purposes as mentioned below :

1. The first reason is to assist learning. When looking at this area we must always strive to make the assessment relevant to the overall goals of the unit and to make our assessment part of the learning process.
2. The second is to determine the effectiveness of the education system. Only with this can we as educators improve the education of our students. However we must be able to determine not only the overall learning but which areas are not effective and need modification.

The overall purposes of assessment:

- To determine pass or fail of a student,
- To make grade or rank of a student.
- To select for future course.
- To predict success in future courses.
- To provide a profile of what a student has learnt,
- To diagnose students strengths and weaknesses.
- To provide feedback to students to improve their learning.
- To help students to develop their skills of self assessment,

Constructivist Perspective of Assessment: Our instructional processes and practices are characterized largely by lectures where students are passive listeners. Such instructional processes contribute at best to lower order cognition, memorization and fragile learning; together, they make a grand nexus for large-scale failing in examination. Students lack problem-solving ability, higher order thinking and cognition,

and creativity. If the education system sets its target for students to be able to think critically, solve problems individually and collectively, be creative, instructional processes must undergo a paradigm shift as suggested in National Curriculum Framework 2005. Instructional processes must bring students at the centre of stage where they primarily learn to learn through peer interaction, problem-solving, experiential learning, etc. In this new instructional scenario, teachers will be facilitators of learning. This new instructional scenario is characterized by constructivist perspective of learning. Through constructivism, students will learn to construct their learning according to their own worldview that unfolds over the years of schooling. It is this learning to construct learning that will hold them into the adult life at work and later. In addition to these, the emerging constructivist approach as has been recognized in the NCF 2005 requires self-assessment, peer assessment, individual and group assessments also to be part of the school evaluation programme. In this context, the teacher educators need to be acquainted with new processes of learning assessment evolving with the technological interventions, so that, they can not only update their knowledge, but shall be capable enough to impart appropriate skills to the teachers for improving the quality of students learning.

Comparatively, conventional education system, particularly school education is guided and controlled by concern for results in examination irrespective of the quality of learning —whether fragile or sustainable. The competition, though artificial, for securing percentage of marks in the final examination creates unusual stress in the students leading often to mental break down and suicides. This must be changed. Change in the mechanics of examination will be too simplistic a solution, amounting to treating the symptoms, not the disease itself. Examination-stress is directly related to facing the challenge of examination with 'fragile' learning due to memorizing huge stock of information. In order to manage the stress factor in examination it will be necessary to ensure sustainable learning.

Yet, it will be necessary to reconstruct and redesign examination system with attributes like flexibility where a student can achieve mastery learning in a flexible time frame and accumulate credits; eliminating power tests (fixed duration), adopt continuous and comprehensive evaluation. The practice of mark sheets indicating marks in certain subjects must be replaced by a portfolio that would accommodate a student's performance in a variety of domains like life skills, academic/non-academic and vocational subjects, personal qualities, etc. The portfolio should be comprehensive, revealing of the total being of the student (CABE Committee, 2005).

Standardized or teacher made achievement tests take relatively little time to administer and are inexpensive. In addition, the results are simple to report and understand. Often a single score, such as a percentile rank, standard score, or grade equivalent is reported for each student, and aggregate scores are reported for a classroom, school. Finally, and very significantly, standardized achievement tests are promoted as objective measures of achievements, meaning that the results are not affected by the personal values or biases of the person who scores the test.

Standardized achievement tests are promoted as scientifically developed instruments which are valid and reliable measures of what a student knows and is able to do. They originated at a time when it seemed both necessary and logical to teach students a given body of subject matter content. Furthermore, many learning theorists believed that teaching and learning were most effective when concepts and ideas were broken into smaller and smaller components. Standardized achievement tests reflected these assumptions and practices, for they were specific to each discipline and typically used a set of multiple choice items to sample the scope of a particular discipline. Advocates of standardized testing assumed that a student who had a command of the pieces (e.g., specific knowledge and facts) also would have a good understanding of the larger content domain. As our focus has been shifted from behaviourist to constructivist approach and our National Curriculum Framework, 2005 has put paramount importance to this new paradigm of assessment from constructivist perspectives, there is an urgent need of bringing about a change in the system of assessment. In these circumstances, this sustainable learning is possible in the process of Continuous and comprehensive assessment of learning considered as inalienable part of the teaching learning process has acquired more significance in the emerging context of learning-centred education within the framework of the constructive approach to learning.

Therefore, from the above discussion it may be understood that constructivist assessment means, “Students go beyond initial information levels (knowledge and comprehension) through elaboration doing in-depth analysis of big ideas, issues and concepts” (Brooks & Brooks, 1993).According to Zahorik, “assessments are tailored to specific modules and teaching situations”. In the same way, assessments include higher order thinking skills, i.e., application, evaluation, analysis, synthesis (Burry-Stock, 1995; Yager, 1991).

From the above statement it is stated that assessment can be used to build understanding through reflection and -interaction. There is great promise for deeper understanding and appreciation of the creative, generative process we call learning

when a student is aware of scholastic expectations and understands how to effectively review and critique his or her own work.

This process has three steps:

1. The teacher must help students understand from the outset the criteria by which their work will be judged.
2. Students must document their work process for the duration of the project or unit.
3. Through performance and feedback, students come to understand the complex nature of judging and improving upon one's work.

Assessment and Constructivist Classroom : Constructivism is basically a theory - based on observation and scientific study - about how people learn. It says that people construct their own understanding and knowledge of the world, through experiencing things and reflecting on those experiences. When we encounter something new, we have to reconcile it with our previous ideas and experience, maybe changing what we believe, or maybe discarding the new information as irrelevant. In any case, we are active creators of our own knowledge. To do this, we must ask questions, explore, and assess what we know.

In the classroom, the constructivist view of learning can point towards a number of different teaching practices. In the most general sense, it usually means encouraging students to use active techniques (experiments, real-world problem solving) to create more knowledge and then to reflect on and talk about what they are doing and how their understanding is changing. Constructivist teachers encourage students to constantly assess how the activity is helping them gain understanding. By questioning themselves and their strategies, students in the constructivist classroom ideally become "expert learners." This gives them ever-broadening tools to keep learning. With a well-planned classroom environment, the students learn how to learn.

Constructivism transforms the student from a passive recipient of information to an active participant in the learning process. Guided by the teacher, students construct their knowledge actively rather than just mechanically ingesting knowledge from the teacher or the textbook.

In the constructivist classroom, the focus tends to shift from the teacher to the students. The classroom is no longer a place where the teacher ("expert") pours knowledge into passive students, who wait like empty vessels to be filled. In the constructivist model, the students are urged to be actively involved in their own

process of learning. The teacher functions more as a facilitator who coaches, mediates, prompts, and helps students develop and assess their understanding, and thereby their learning. One of the teacher's biggest jobs becomes asking good questions.

As is the case with many of the current/popular paradigms, you're probably already using the constructivist approach to some degree. Constructivist teachers pose questions and problems, and then guide students to help them find their own answers. They use many techniques in the teaching process.

For example, they may be able to:

- prompt students to formulate their own questions (inquiry),
- allow multiple interpretations and expressions of learning (multiple intelligences),
- encourage group work and the use of peers as resources (collaborative learning).

Characteristics of Constructivist Assessment: In the context of constructivist approach, assessments need to gauge the progress of students in achieving the three major learning outcomes of constructivist approach:

- conceptual understanding,
- abilities to perform scientific inquiry,
- and understandings about inquiry.

All learners come to learning tasks with some relevant knowledge, feelings and skills. Meaningful learning occurs when the learners seeks to relate new concepts and propositions to relevant existing concept and propositions in her/his cognitive structure (Mintzes, Novak, Wandersee, 2000).

Constructivist approach to assessment is a formative rather than a summative. Its purpose is to improve the quality of student learning, not to provide evidence for evaluating or grading students. Assessment has to respond to the particular needs and characteristics of the teachers, students and subject content. Assessment is context-specific: what works well in one class will not necessarily work in another. Assessment is ongoing process. Teachers get feedback from students of their learning. Teachers then complete the loop by providing students with feedback on the results of the assessment and suggestions for improving learning.

Benefits of Constructivist Classroom:

- Students learn more, enjoyably and are more likely to retain learning;
- Students learn how to think and understand;

- It is a transferable skill to other settings;
- Students have ownership of their own learning;
- It applies natural curiosity to real world situations;
- Promotes social and communication skill within a group setting.

4.1.4. Meaning and Difference of Assessment of Learning and Assessment for Learning. Meaning of Assessment of Learning:

The purpose of this kind of assessment is usually summative and is mostly done at the end of a task; unit of work etc. Assessment *of* Learning is the assessment that becomes public and results in statements or symbols about how well students are learning. It often contributes to pivotal decisions that will affect students' futures. It is important, then, that the underlying logic and measurement *of* assessment of learning be credible and defensible.

Generally, Assessment of learning is concerned with assessment of learners' performance after the completion of a course or more specifically at the end of an instructional unit, term or academic year. It is comprised of one or several combinations of different methods of assessment like oral, written and performance. They provide learners scope to synthesize their learning experiences up to the end of the stipulated period and demonstrate how well they have learned the essential skills. procedures and concepts to which they were exposed during the given instructional period. Assessment of learning is the most familiar and universally used mode. In spite of being the oldest practiced mode, this very often is teacher-dominated and becomes confined to the norm referenced quantitative approaches neglecting the evaluation of broader aspects of learning.

The Role of Teacher in Assessment of Learning: The consequences of assessment of learning are often far-reaching and affect students seriously, teachers have the responsibility of reporting student learning accurately and fairly, based on evidence obtained from a variety of contexts and applications. Effective assessment of learning requires that teacher provide.

- a rationale for undertaking a particular assessment of learning at a particular point in time.
- clear descriptions of the intended learning.

- processes that make it possible for students to demonstrate their competence and skill.
- a range of alternative mechanisms for assessing the same outcomes.
- public and defensible reference points for making judgements.
- transparent approaches to interpretation
- descriptions of the assessment process
- strategies for recourse in the event of disagreement about the decisions

Planning for Assessment of Learning:

Purposes of Assessment: The purpose of assessment of learning is to measure, certify, and report the level of students' learning, so that reasonable decisions can be made about students.

There are many potential users of the information:

- teachers (who can use the information to communicate with parents about their children's proficiency and progress)
- parents and students (who can use the results for making educational and vocational decisions)
- potential employers and post-secondary institutions (who can use the information to make decisions about hiring or acceptance)
- principals, district or divisional administrators, and teachers (who can use the information to review and revise programming)

Assessment of learning requires the collection and interpretation of information about students' accomplishments in important curricular areas, in ways that represent the nature and complexity of the intended learning. Because genuine learning for understanding is much more than just recognition or recall of facts or algorithms, assessment of learning tasks need to enable students to show the complexity of their understanding. Students need to be able to apply key concepts, knowledge, skills, and attitudes in ways that are authentic and consistent with current thinking in the knowledge domain.

Method of Assessment:

In assessment of learning, the methods chosen need to address the intended curriculum outcomes and the continuum of learning that is required to reach the outcomes. The methods must allow all students to show their understanding and produce sufficient information to support credible and defensible statements about the nature and quality of their learning, so that others can use the results in appropriate ways.

Assessment of learning methods include not only tests and examinations, but also a rich variety of products and demonstrations of learning—portfolios, exhibitions, performances, presentations, simulations, multimedia projects, and a variety of other written, oral, and visual methods.

Process of quality Assessment:

Assessment of learning needs to be very carefully constructed so that the information upon which decisions are made is of the highest quality. Assessment of learning is designed to be summative, and to produce defensible and accurate descriptions of student competence in relation to defined outcomes and, occasionally, in relation to other students' assessment results. Certification of students' proficiency should be based on a rigorous, reliable, valid and equitable process of assessment and evaluation.

Reliability:

Measuring reliability is very important task for assessment otherwise so many error may come. Reliability in assessment of learning depends on how accurate, consistent, fair, and free from bias and distortion the assessment.

Teachers might ask themselves:

- Do I have enough information about the learning of this particular student to make a definitive statement?
- Was the information collected in a way that gives all students an equal chance to show their learning?
- Would another teacher arrive at the same conclusion?
- Would I make the same decision if I considered this information at another time or in another way?

Reference Points:

Typically, the reference points for assessment of learning are the learning outcomes as identified in the curriculum that make up the course of study.

Assessment tasks include measures of these learning outcomes, and a student's performance is interpreted and reported in relation to these learning outcomes.

In some situations where selection decisions need to be made for limited positions (e.g.university entrance, scholarships, employment opportunities), assessment of learning results are used to rank students. In such norm-referenced situations, what is being measured needs to be clear, and the way it is being measured needs to be transparent to anyone who might use the assessment results.

Validity:

Because assessment of learning results in statements about students' proficiency in wide areas of study, assessment of learning tasks must reflect the key knowledge, concepts, skills, and dispositions set out in the curriculum, and the statements and inferences that emerge must be upheld by the evidence collected.

Record-Keeping:

Whichever approaches teachers choose for assessment of learning, it is their records that provide details about the quality of the measurement. Detailed records of the various components of the assessment of learning are essential, with a description of what each component measures, with what accuracy and against what criteria and reference points, and should include supporting evidence related to the outcomes as justification. When teachers keep records that are detailed and descriptive, they are in an excellent position to provide meaningful reports to parents and others. Merely a symbolic representation of a student's accomplishments (e.g., a letter grade or percentage) is inadequate. Reports to parents and others should identify the intended learning that the report covers, the assessment methods used to gather the supporting information, and the criteria used to make the judgement.

Guidelines for Grading:

- Use curriculum learning outcomes or some clustering of these (e.g., strands) as the basis for grading.

- Make sure that the meaning of grades comes from clear descriptions of curriculum outcomes and standards. If students achieve the outcome, they get the grade,
- Base grades only on individual achievement of the targeted learning outcomes. Report effort, participation, and attitude, for example, separately, unless they are a stated curriculum outcome. Any penalties (e.g., for late work, absences), if used. should not distort achievement or motivation.
- Sample student performance using a variety of methods. Do not include all assessments in grades. Provide ongoing feedback on formative performance using words, rubrics, or checklists, not grades.
- Keep records in pencil so they can be updated easily to take into consideration more recent achievement. Provide second-chance assessment opportunities (or more). Students should receive the highest, most consistent mark, not an average mark for multiple opportunities.
- Crunch numbers carefully, if at all. Consider using the median, mode, or statistical measures other than the mean. Weight components within the final grade to ensure that the intended importance is given to each learning outcome.
- Make sure that each assessment meets quality standards (e.g., there should be clear targets, clear purpose, appropriate target-method match, appropriate sampling, and absence of bias and distortion) and is properly recorded and maintained (e.g., in portfolios, at conferences, on tracking sheets). 8. Discuss and involve students in grading at the beginning and throughout the teaching and learning process.

Assessment and Feedback to Students:

In assessment students' feedback is very important because assessment of learning comes most often at the end of a unit or learning cycle, feedback to students has a less obvious effect on student learning than assessment for learning and assessment as learning rely on their marks and on teachers' comments as indicators of their level of success, and to make decisions about their future learning endeavours.

Differentiating Learning:

In assessment of learning, differentiation occurs in the assessment itself. It would make little sense to ask a near-sighted person to demonstrate driving proficiency

without glasses. When the driver uses glasses, it is possible for the examiner to get an accurate picture of the driver's ability, and to certify him or her as proficient. In much the same way, differentiation in assessment of learning requires that the necessary accommodations be in place that allow students to make the particular learning visible. Multiple forms of assessment offer multiple pathways for making student learning transparent to the teacher. A particular curriculum outcome requirement, such as an understanding of the social studies notion of conflict, for example, might be demonstrated through visual, oral, dramatic, or written representations. As long as writing were not an explicit component of the outcome, students who have difficulties with written language, for example, would then have the same opportunity to demonstrate their learning as other students.

Although assessment of learning does not always lead teachers to differentiate instruction or resources, it has a profound effect on the placement and promotion of students and, consequently, on the nature and differentiation of the future instruction and programming that students receive. Therefore, assessment results need to be accurate and detailed enough to allow for wise recommendations.

Reporting:

There are many possible approaches to reporting student proficiency. Reporting assessment of learning needs to be appropriate for the audiences for whom it is intended, and should provide all of the information necessary for them to make reasoned decisions. Regardless of the form of the reporting, however, it should be honest, fair, and provide sufficient detail and contextual information so that it can be clearly understood. Traditional reporting, which relies only on a student's average score, provides little information about that student's skill development or knowledge. One alternate mechanism, which recognizes many forms of success and provides a profile of a student's level of performance on an emergent-proficient continuum, is the parent student- teacher conference. This forum provides parents with a great deal of information, and reinforces students' responsibility for their learning

In order to ensure comprehensive, valid and fair assessment of student learning, one need to take all possible precautions, some of which are:

- In order to provide an accurate picture of a student's achievement, one must gather enough evidence to determine "justifiable" grades across all aspects of achievement (Knowledge, Understanding, Thinking, Communication and Application).

- Evidence must be gathered using a variety of assessment strategies so that all students can find sufficient scope to demonstrate their learning.
- There should be student choice within assessment tools/tasks to address individual needs.
- Prior to a final demonstration of learning, practice and feedback for improvement must be provided to the student.
- Evaluator's (teacher's) professional judgment of on students' learning achievement should not be based on single incident of evaluation rather on several evaluation events conducted formally and/or informally over a period of time. Assessment of learning should be based on the most consistent and more recent levels of evidence gathered.
- "Numerous" and "varied" opportunities contribute to the concept of most consistent as it helps to identify trends in student's learning. The grade should reflect the development of learning at any point in time.
- Inconsistencies in student's performance should be reviewed to determine the reason for their occurrence and whether they impact on the student's achievement.
- Recent evidence should be used when looking for growth over time. Recent evidence may not be applicable to the acquisition of discrete facts and information.

Meaning of Assessment for Learning:

Assessment for Learning is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learners are in their learning, where they need to go and how best to get there. Assessment for Learning is also known as formative assessment.

Assessment for learning is best described as a process by which assessment information is used by teachers to adjust their teaching strategies, and by students to adjust their learning strategies. Assessment, teaching, and learning are inextricably linked, as each informs the others. Assessment is a powerful process that can either optimise or inhibit learning, depending on how it's applied.

Teachers make professional judgements on learners' performance in every teaching and learning session undertaken, whether consciously or subconsciously. Using these

professional judgements and translating them into feedback on the quality of individuals' work is the focus of Assessment for Learning. Successful Assessment for learning strategies result in improved learner progress on a continual basis. The principal characteristic of Assessment for Learning is effective feedback provided by teachers to learners on their progress. The value of the feedback is dependent on two factors:

- ❖ the quality of the feedback
- ❖ how learners receive and ultimately use it.

Teachers, therefore, need training and support to enable them to make valuable assessment decisions, to provide quality feedback to learners, and to teach learners to receive feedback positively and use the information contained within it effectively to improve their work. Assessment for Learning and quality feedback can and do promote increased learner progress.

Assessment as part of classroom activities is a fundamental process required to promote learning and ultimately achievement.

Learners need to know and understand the following before learning can take place:

- ❖ What is the aim of the learning?
- ❖ Why do they need to learn it?
- ❖ Where are they in terms of achieving the aim?
- ❖ How can they achieve the aim?

When learners know and understand these principles, the quality of learning will improve. Sharing this information with learners will promote ownership of the learning aims and a sense of shared responsibility between the teacher and learner to achieve those aims. Improving learners' confidence and self-esteem reflects positively in learners' work and their motivation is improved.

Assessment for Learning and Teacher:

Assessment for learning helps teachers gather information to:

- ❖ plan and modify teaching and learning programmes for individual students, groups of students, and the class as a whole.

- ❖ pinpoint students' strengths so that both teachers and students can build on them.
- ❖ identify students' learning needs in a clear and constructive way so they can be addressed.
- ❖ involve parents, families, and while in their children's learning.
- ❖ explain the learning aims to learners and check their understanding.
- ❖ demonstrate the standards learners are required to achieve and help them recognise when they have achieved that standard.
- ❖ give effective feedback on assessment decisions, so that learners know how to improve.
- ❖ demonstrate high expectations and make it obvious to learners that they believe that they can improve on their past performance.
- ❖ provide regular opportunities for teachers and learners to reflect on the last performance and review learners' progress.
- ❖ develop learners' self-assessment skills, so that they can recognise what aspects of their own work need to improve.

Pattern of scale to measure learner performance of Learning in teaching and learning session: given below is six point scales.

1= excellent

2 = very good

3 = good

4 = satisfactory

5 = poor

6 = very poor

Teachers need to;

- ❖ decide what is going to be learnt in a particular session.
- ❖ define the learning goals.
- ❖ communicate the learning goals to the learners.

- ❖ compile questions and design tasks to check learner understanding of the learning goals.
- ❖ explain to the learners the criteria which will be used to assess their work.
- ❖ decide how feedback is going to be provided.
- ❖ define how learners will take an active part in the assessment process.
- ❖ plan opportunities for learners to use the feedback provided on the assessment decision to further progress.

Effective session learning plans:

Teachers need to make sure that every session learning plan includes:

- ❖ details of the learning intentions/outcomes
- ❖ how learning intentions/outcomes are going to be shared with learners and methods of checking their understanding
- ❖ information on the assessment criteria and marking
- ❖ assessment opportunities
- ❖ methods of feedback to be provided
- ❖ details of the differentiated range of learners making up the group
- ❖ information on teaching and learning styles incorporated into the session
- ❖ how review times are to be used
- ❖ the specifications of the differentiated teaching and learning materials to be used to meet individual learner needs and create effective learning opportunities
- ❖ an evaluation section for the teacher to complete to say what did or did not work well and why.

Assessing learning: the effective use of questioning:

No matter how well a teaching and learning session is planned, or how well a teacher may feel at the conclusion to the session, it is not how well the teacher has performed, but the reaction of the learners that matters. The real test is whether learners have learnt and ultimately progressed against the learning objectives defined at the start of the session. Testing learning is an important part of classroom practice, and questioning is one of the most common methods of checking learner understanding.

Feedback on assessment:

Successful Assessment for Learning strategies hinge on the nature of feedback, its content and the way it is received and used by learners.

- ❖ Feedback is providing information to an individual who focuses on their performance or behaviour.
- ❖ The feedback provided should be delivered in a positive manner and lead to action to affirm or develop an individual's performance or behaviour.
- ❖ Feedback provided should not be of a personal nature and should focus on hard data. facts or observed examples of evidence.

Differences of Assessment of Learning and Assessment for Learning:

	Assessment for Learning	**Assessment of Learning**
Why	to enable teachers to determine next steps in advancing student learning and Information for teachers' instructional decisions	to certify or inform parents or others of student's proficiency in relation to curriculum learning outcomes and Judgments about placement, promotion, credentials, etc.
What	each student's progress and learning needs in relation to the curricular outcomes	the extent to which students can apply the key concepts, knowledge, skills, and attitudes related to the curricular outcomes range of methods
How	range of methods in different modes that make students' skills and understanding visible	range of methods in different modes that assess both product and process
Ensuring Quality	accuracy and consistency of observations and interpretations of student learning ❖ clear, detailed learning expectations ❖ accurate, detailed notes for descriptive feedback to each student	accuracy, consistency, and fairness of judgements based on high-quality information ❖ clear, detailed, learning expectations ❖ fair and accurate summative reporting

Using the Information	descriptive feedback to further his or her learning ❖ differentiate instruction by continually checking where each student is in relation to the curricular outcomes	indicate each student's level of learning ❖ provide the foundation for discussions on placement or promotion
	• provide parents or guardians with descriptive feedback about student learning and ideas for support	❖ report fair, accurate, and detailed information that can be used to decide the next steps in a student's learning

4.1.5. Comparing and Contrasting Assessment, Evaluation, Measurement, Test Examination:

Comparing, and Contrasting Assessment, Evaluation and Measurement:

Educational discourse has many words that relate to the broad task of judgement the woi a person, programme, or piece of work, including, evaluating, measuring, asses appraising, examining, testing, marking, grading, and scoring. Such words are confused: one person's testing, is another person's assessing, making in one country m grading in another. Nevertheless, these words are not all synonymous. In this area the discussion will be limited within assessment, evaluation and measuremei

Assessment:

In education assessment is the process by which one attempts to measure the qual learning using various assessment techniques, assignments, project, continuous assess objective type tests.

As far as possible, the term assessment should be reserved for application to people. It (activities included in grading (formal and non-formal) examining, certifying and ; Students' achievement on a particular course may be assessed according to (a critical dictionary of education in 1982).

Assessment is a process by which information is obtained relative to some known objective or goal. Assessment is a broad term that includes testing. A test is a special form of assessment. Tests are assessments made under contrived circumstances especially so that they may be administered. In other words, all tests

are assessments, but not all assessments are tests. We test at the end of a lesson or unit. We assess progress at the end of a school year through testing. Whether implicit or explicit, assessment is most usefully connected to some goal or objective for which the assessment is designed. A test or assessment yields information relative to an objective or goal. In that sense, we test or assess to determine whether or not an objective or goal has been obtained. Assessment of skill attainment is rather straightforward. Either the skill exists at some acceptable level or it doesn't. Skills are readily demonstrable.

In the most general sense, assessment is the process of making a judgment or measurement of worth of an entity (e.g., person, process, or program).

Learner assessment is best conceived as a form of two-way communication in which feedback on the educational process or product is provided to its key stakeholders (McAlpine, 2002). Specifically, learner assessment involves communication to teachers (feedback on teaching); students (feedback on learning); curriculum designers (feedback on curriculum) and administrators (feedback on use of resources).

For teachers and curriculum/course designers, carefully constructed learner assessment techniques can help determining whether or not the stated goals are being achieved.

According to Brissenden and Slater (n.d.), classroom assessment can help teachers answer the following specific questions:

- To what extent are my students achieving the stated goals?
- How should I allocate class time for the current topic?
- Can I teach this topic in a more efficient or effective way?
- What parts of this course/unit are my students finding most valuable
- How will I change this course/unit the next time I teach it?
- Which grades do I assign my students?

For students, learner assessment answers a different set of questions (Brissenden and Slater, n.d.):

Do I know what my instructor thinks is most important?

- Am I mastering the course content?
- How can I improve the way I study in this course?
- What grade am I earning m this course?

The Importance of Assessment:

First and foremost, assessment is important because it drives students Learning (Brissenden and Slater, n.d.). Whether we like it or not, most students tend to focus their energies on the best or most expeditious way to pass their 'tests.' Based on this knowledge, we can use our assessment strategies to manipulate the kinds of learning that takes place. For example. assessment strategies that focus predominantly on recall of knowledge will likely promote superficial learning.

On the other hand, if we choose assessment strategies that demand critical thinking or creative problem-solving, we are likely to realize a higher level of student performance or achievement. In addition, good assessment can help students become more effective self-directed learners (Angelo and Cross, 1993).

Types and Approaches to Assessment:

- ❖ Formative - Summative
- ❖ Informal- Formal
- ❖ Continuous- Final
- ❖ Process- Product
- ❖ Divergent - Convergent

Formative vs. **Summative Assessment:**

Formative assessment is designed to assist the learning process by providing feedback to the learner, which can be used to identify strengths and weakness and hence improve future performance. Formative assessment is most appropriate where the results are to be used internally by those involved in the learning process (students, teachers, curriculum developers).

Summative assessment is used primarily to make decisions for grading or determine readiness for progression. Typically summative assessment occurs at the end of an educational activity and is designed to judge the learner's overall performance. In addition to providing the basis for grade assignment, summative assessment is used to communicate students' abilities to external stakeholders, e.g. administrators and employers.

Informal vs. Formal Assessment:

With informal assessment, the judgments are integrated with other tasks, e.g., lecturer feedback on the answer to a question or preceptor feedback provided while performing a bedside procedure. Informal assessment is most often used to provide formative feedback. As such, it tends to be less threatening and thus less stressful to the student. However, informal feedback is prone to high subjectivity or bias.

Formal assessment occurs when students are aware that the task that they are doing is for assessment purposes, e.g., a written examination. Most formal assessments also are summative in nature and thus tend to have greater motivation impact and are associated with increased stress. Given their role in decision-making, formal assessments should be held to higher standards of reliability and validity than informal assessments.

Continuous vs. Final Assessment:

Continuous assessment occurs throughout a learning experience (intermittent is probably a more realistic term). Continuous assessment is most appropriate when student and/or instructor knowledge of progress or achievement is needed to determine the subsequent progression or sequence of activities. Continuous assessment provides both students and teachers with the information needed to improve teaching and learning in process.

Obviously, continuous assessment involves increased effort for both teacher and student.

Final (or terminal) assessment is that which takes place only at the end of a learning activity. It is most appropriate when learning can only be assessed as a complete whole rather than as constituent parts. Typically, final assessment is used for summative decision-making. Obviously, due to its timing, final assessment cannot be used for formative purpose.

Process vs. Product Assessment:

Process assessment focuses on the steps or procedures underlying a particular ability or task. i.e., the cognitive steps in performing a mathematical operation or the procedure involved in analyzing a blood sample. Because it provides more detailed information, process assessment is most useful when a student is learning a new skill and for providing formative feedback to assist in improving performance.

Product assessment focuses on evaluating the result or outcome of a process. Using the above examples, we would focus on the answer to the math computation or the accuracy of the blood test results. Product assessment is most appropriate for documenting proficiency or competency in a given skill, i.e., for summative purposes. In general, product assessments are easier to create than product assessments, requiring only a specification of the attributes of the final product.

Divergent vs. Convergent Assessment:

Divergent assessments are those for which a range of answers or solutions might be considered correct. Examples include essay tests, and solutions to the typical types of indeterminate problems. Divergent assessments tend to be more authentic and most appropriate in evaluating higher cognitive skills. However, these types of assessment are often time consuming to evaluate and the resulting judgments often exhibit poor reliability.

A convergent assessment has only one correct response (per item). Objective test items are the best example and demonstrate the value of this approach in assessing knowledge. Obviously, convergent assessments are easier to evaluate or score than divergent assessments. Unfortunately, this "ease of use" often leads to their widespread application of this approach even when contrary to good assessment practices. Specifically, the familiarity and ease with which convergent assessment tools can be applied leads to two common evaluation fallacies: the Fallacy of False Quantification (the tendency to focus on what's easiest to measure) and the Law of the Instrument Fallacy (moulding the evaluation problem to fit the too.

Evaluation:

According to the dictionary of education (1977), explains evaluation as "Value judgement on an observation, 'performance test,' or indeed any 'data' whether directly measured or inferred. For example, if a pupil gains a score of 32 on a test of education, this measure is evaluated by placing a meaning on it relative to a standard, norm or some other situation. Thus, the score may be 'above average', 'fail', or indicative of below or above average effort on the part of the individual, or again that the score is 'good' for his/her age, but 'average' for his/ her particular class."

According to Dr.K. Sudha Rao (1986), "Educational evaluation is a process of estimating and appraising, the degree and dimension of appraising the proficiency level of the particular educational practice, which is being conducted. It is way of appraising the application of educational theory in practice."

Characteristics of Evaluation:

1. Evaluation is a continuous process.
2. Evaluation includes academic and non-academic subjects.
3. Evaluation is a procedure for improving the product.
4. Discovering the needs of an individual and designing the learning experiences.

Main Generalizations about Evaluation;

1. Evaluation is function of the learner and instruction and therefore, good evaluation is one which is done by the teacher, of the taught as a individual.
2. Evaluation provides quality control at every stage of the teaching learning process.
3. Evaluation provides feed-back.
4. Remedial teaching is possible through this evaluation.

The Purposes of Evaluation:

According to Oguniyi (1984), educational evaluation is carried out from time to time for the following purposes:

(i) to determine the relative effectiveness of the programme in terms of students' behavioural output;

(ii) to make reliable decisions about educational planning;

(iii) to ascertain the worth of time, energy and resources invested in a programme;

(iv) to identify students' growth or lack of growth in acquiring desirable knowledge, skills, attitudes and societal values;

(v) to help teachers determine the effectiveness of their teaching techniques and learning materials;

(vi) to help motivate students to want to learn more as they discover their progress or lack of progress in given tasks;

(vii) to encourage students to develop a sense of discipline and systematic study habits;

(viii) to provide educational administrators with adequate information about teachers' effectiveness and school need;

(ix) to acquaint parents or guardians with their children's performances;

(x) to identify problems that might hinder or prevent the achievement of set goals;

(xi) to predict the general trend in the development of the teaching-learning process;

(xii) to ensure an economical and efficient management of scarce resources:

(xiii) to provide an objective basis for determining the promotion of students from one class to another as well as the award of certificates;

(xiv) to provide a just basis for determining at what level of education the possessor of a certificate should enter a career.

Measurement:

International dictionary of education (1977), defines measurement as, "Act of finding dimensions of any object and the quality found by each act."

Pantom, M.Q.(1985) states that measurement implies assigning a numerical quantity. While instruments such as rulers and stopwatches can be used to determine height, speed, and so on, any intellectual capacities or other quantities of educational interest must be measured indirectly. Thus, tests are typically used on measures such as dimensions and levels of intelligence. It may be included in an assessment.

According to the dictionary of education, (1981) defines measurement as fundamentally, we can say that measurement entails certain rules and producers for assessing numbers represent the quantity of the attribute.

Measurement refers to the process by which the attributes or dimensions of some physical object are determined. One exception seems to be in the use of the word measure in determining the IQ of a person. The phrase, "this test measures IQ" is commonly used. Measuring such things as attitudes or preferences also applies. However, when we measure, we generally use some standard instrument to determine how big, tall, heavy, voluminous, hot, cold, fast, or straight something actually is. Standard instruments refer to instruments such as rulers, scales, thermometers, pressure gauges, etc. We measure to obtain information about what is. Such information may or may not be useful, depending on the accuracy of the instruments we use, and our skill at using them. There are few such instruments in the social sciences that approach the validity and reliability of say a 12" ruler. We measure how big a classroom is in terms of square feet, we measure the temperature of the room by using a thermometer, and we use Ohm meters to determine the voltage, amperage, and resistance in a

circuit. In all of these examples, we are not assessing anything; we are simply collecting information relative to some established rule or standard. Assessment is therefore quite different from measurement, and has uses that suggest very different purposes.

Proposition in Measurement:

Thorndike and Hagen in (1979) list six propositions that seem to us to provide the foundations for a contemporary view of educational and psychological measurement procedures and their role in our schools and our society.

1. Various types of decisions have to be made.
2. The more relevant and more accurate the information, the better the decision.
3. Measurement instruments and procedures provide an important set of tools for improving the information available for decision making.
4. The use of any type of information for decision making needs to know what that information signifies and how far it can be trusted.
5. The facts and values involved in any decision are complex.
6. The wisdom of the decider is crucial.

According to Thorndike and Hagen (1979), measurement in any field involves three common steps:

1. Identifying and defining the quality or attitude that is to be measured,
2. Determining a set of operation by which the attribute may be made manifest and perceivable, and.
3. Establishing a set of procedures or definitions for translating observations into quantitative statements of degree or amount.

Assessment versus Evaluation:

Depending on the authority or dictionary consulted, assessment and evaluation may be treated as synonyms or as distinctly different concepts. As noted above, if a distinction exists, it probably involves what is being measured and why and how the measurements are made. In terms of what, it is often said that we assess students and we evaluate instruction. This distinction derives from the use of evaluation research methods to make judgments about the worth of educational activities. Moreover, it emphasizes an individual focus of assessment, i.e., using information

to help identify a learner's needs and document his or her progress toward meeting goals.

In terms of why and how the measurements are made, the following table (Apple & Krumsieg,1998) compares and contrasts assessment and evaluation on several important dimensions, some of which were previously defined.

Dimension	**Assessment**	**Evaluation**
Timing	Formative	Summative
Focus of Measurement	Process -oriented	Product - oriented
Relationship between Administrator and Recipients	Reflective	perspective
Findings and uses	Diagnostic	Judgemental
Modifiability of criteria measure	Flexible	fixed
Standards measurement	Absolute individual	Comparative
Relation with objectives	Cooperative	Competitive

From: Apple, D.K. & Krumsieg. K.(1998). Process education teaching institute handbook.

Evaluation Vs Measurement:

Evaluation and Measurement have similar meaning and are closely related with each other. Nevertheless, these terms are not synonymous.

Measurement is a procedure for assigning numbers to specified attributes or characteristics of person in a manner that maintains the real world relationship among persons with regard to what is being measured."

Whereas, evaluation involves judging the value or worth of a pupil on an instructional method or on an educational programme. Such judgements may or may not be based on information obtained from tests.

Measurement they process of obtaining numerical description of the degree to which an individual possesses particular characteristics. Answer the question, how much?

Evaluation the systematic process of collecting, analysing and interpreting information to determine. The context to which pupils are achieving instructional objects. Answer the question how good?

Measurement, for all practical purposes assessment and measurement can be considered synonymous. When assessment is taking place, information or data are being collected and measurement is being conducted.

Evaluation, evaluation is a process that includes measurement and possibly testing but it also contains the notion of value judgement.

Measurement is an act or a process that involves the assignment of a numerical index to whatever is being assessed.

Whereas evaluation = quantitative description of learner's achievement + qualitative description of learner's abilities + value judgements about achievements and abilities.

Test:

To understand the concept of "test" you must recall the earlier definitions of "assessment" and "evaluation". Note that we said people use these terms interchangeably. But in the real sense, they are not the same. Tests are detailed or small scale task carried out to identify the candidate's level of performance and to find out how far the person has learnt what was taught or be able to do what he/she is expected to do after teaching. Tests are carried out in order to measure the efforts of the candidate and characterize the performance. Whenever you are tested, as you will be done later on in this course, it is to find out what you know, what you do not know, or even what you partially know. Test is therefore an instrument for assessment. Assessment is broader than tests, although the term is sometimes used to mean tests as in "I want to assess your performance in the course". Some even say they want to assess students' scripts when they really mean they want to mark the scripts. Assessment and evaluation are closely related, although some fine distinctions had been made between the two terms. Evaluation may be said to be the broadest. It involves evaluation of a programme at the beginning, and during a course. This is called formative evaluation.. It also involved evaluation of a programme or a course at the end of the course. This is called summative evaluation. Testing is part of assessment but assessment is more than testing.

Tests involve measurement of candidates' performance, while evaluation is a systematic way of assessing the success or failure of a programme.

Evaluation involves assessment but not all assessments are evaluation. Some are reappraisal of a thing, a person, life, etc

Purpose of Tests:

This section discusses'the reasons for testing. Why do we have to test you? At the end of a course, why do examiners conduct tests? Some of the reasons are outlined in this section.

1. We conduct tests to find out whether the objectives we set for a particular course, lesson or topic has been achieved or not. Tests measure the performance of a candidate in a course, lesson, or topic and thus, tell the teacher or course developer that the objectives of the course or lesson have been achieved or not. If the person taught performed badly, we may have to take a second look at the objectives of the course of lesson.
2. We test students in the class to determine the progress made by the students. We want to know whether or not the students are improving in the course, lesson, or topic. If progress is made, we reinforce the progress so that the students can learn more. If no progress is made, we intensity teaching to achieve progress. If progress is slow, we slow down the speed of our teaching.
3. We use tests to determine what students have learnt or not learnt in the class. Tests show the aspects of the course or lesson that the students have learnt. They also show areas where learning has not taken place. Thus, the teacher can re-teach for more effective learning.
4. Tests are used to place students/candidates into a particular class, school, level, or employment. Such tests are called placement tests. The assumption here is that an individual who performs creditably well at a level can be moved to another level after testing. Thus, we use tests to place a pupil into primary two, after he/she has passed the test set for primary one, and so on.
5. Tests can reveal the problems or difficulty areas of a learner. Thus, we say we use tests to diagnose or find out the problems or difficulty areas of a student

or pupil. A test may reveal whether or not a learner, for example, has a problem with pronouncing a sound, solving a problem involving decimal, or constructing a basic shape, e.g. a triangle, etc.

6. Tests are used to predict outcomes. We use tests to predict whether or not a learner will be able to do a certain job, task, and use language to study in a university or perform well in a particular school, college, or university.

Examination:

The dictionary of education (1959) by Good defines examination as "An appraisal of ability, achievement, or present status in any respect; or the instrument used in making such an appraisal."

International Dictionary of Education (1978) by G. Tarry Page and J.B. Thomas explains the concept of examination as "(I) Assessment of ability, achievement or present performance in a subject. (2) Instrument of assessment can be long easy or mixed form of assessment. May be used for qualifying for entrance to professions and higher education"

Functions of Examination:

1. To evaluate the achievement of the students.
2. To measure personality.
3. To measure the efficiency of the teacher and the school.
4. To help in diagnosis.
5. To act as incentive.
6. To help in prognosis
7. To provide uniformity of standard.
8. To help in guidance
9. To measure fitness for admission to higher course.
10. To help in selection by competition
11. Study of every subject.
12. Parent's point of view.

13. To certify competency.
14. To link schools with the world.

Exam Vs Tests :

The difference between exam and test is mostly in the usage of the terms. Test and exam are most of the times used as synonyms. That is not completely wrong as in the field of education test is a series of questions that measures the knowledge of the student on a particular lesson. Exam is a more formal form of test that measures the knowledge of a student on a number of lessons. As you can see, in the educational field, both are inspecting the knowledge of the student.

However, depending on the seriousness or the formality of this examination you have to use the two words appropriately. The two terms are used frequently in other fields such as medical field too. Let us try to understand more about each term and the implied difference between both.

According to the American Heritage Dictionary test means 'a series of questions, problems, or physical responses designed to determine knowledge, intelligence, or ability.'

A test, as we discussed earlier, is a short exam that a teacher gives to his or her students at the end of a lesson. A teacher gives this test in order to understand how much of what he or she has taught has gone into the students' minds. A test is not very formal. Usually, this is held at the class level. A teacher usually takes a period of his or her teaching time to conduct this sort of test. The students have to answer some questions that evaluate the level of each student's understanding of the lesson. This can be a written test or an oral test.

Other than in the field of education, the word test is also used in other field such as the field of medicine. For example, when you give your blood to a lab to check if everything is alright in your body by examining the blood, that procedure is called a blood test. Also, when you want to check your eyesight, the procedure involved is known as an eye test. Then, if you remember the procedure you had to follow when obtaining your driving license, there was a driving test involved. That test checked how much you could perform the activity of driving. So, a test can also be a test of actions.

Forms of Difference	Exam	Test
Meaning	Exam refers to a procedure where your knowledge about a number of lessons is tested.	Test refers to a procedure where your knowledge is tested about a lesson.
Nature	Exams are more formal in nature.	Tests are less formal in nature.
Form	Exam is usually written. Some written exams have a practical test attached to it too.	Test can be a written, oral or practical test in form.
Uses in the field	Exam is usually used in the educational field.	Test is used in fields such as medicine other than the educational field.

As you can see, in the field of education, both exam and test refers to the activity that is given to you by your teacher to test your knowledge. With each word the formality changes. Test is used in more fields that the field of education. Basically both have same types of functions.

4.1.6. Formative and Summative Evaluation, Curriculum based Measurement:

Assessment is the process of gathering data. More specifically, assessment is the ways instructors gather data about their teaching and their students' learning (Hanna & Dettmer, 2004). The data provide a picture of a range of activities using different forms of assessment such as: pre-tests, observations, and examinations. Once these data are gathered, you can then evaluate the student's performance. Evaluation, therefore, draws on one's judgment to determine the overall value of an outcome based on the assessment data. It is in the decision-making process then, where we design ways to improve the recognized weaknesses, gaps, or deficiencies.

There are mainly two types of evaluation conduct in the class room situation namely summative and formative evaluation. This present discourse will discuss in details about summative and formative evaluation.

Summative Evaluation:

Summative assessment takes place after the learning has been completed and provides information and feedback that sums up the teaching and learning process.

Typically, no more formal learning is taking place at this stage, other than incidental learning which might take place through the completion of projects and assignments.

According to A.J. Nitko (1983), "summative evaluation describes judgements about the merits of an already completed programme, procedure or product".

In the words of Gilbert Sax (1989), "a summative evaluation can provide evidence that the programme is satisfactory and should be continued for next year's students or that student learning and learning attitudes are so negative that a new programme is needed".

A perusal of the above definitions shows that the summative evaluation has the following chief elements:

1. There should be some instructional programme before summative evaluation,
2. The instructional programme should be for the attainment of some objectives.
3. Summative evaluation is done at the end or completion of a particular instructional programme whose duration may vary from a semester to whole year.
4. Summative evaluation should check whether there has been earning or not. If the answer is yes, then what is the quantity and quality of the learning in relation to predetermined objectives?
5. Summative learning provides feedback to the classroom teacher for the success or failure of the programme or and of the student.

Chief Characteristics of the Summative Evaluation:

1. It lends to the use of well-defined evaluation designs.
2. It focuses on analysis.
3. It provides descriptive analysis.
4. It tends to stress local effects.
5. It is unobtrusive and non-reactive as far as possible.
6. It is concerned with broad range of issues.
7. Its instruments are reliable and valid.

Types of Summative Assessment:

- ❖ Examinations (major, high-stakes exams)
- ❖ Final examination (a truly summative assessment)
- ❖ Term papers (drafts submitted throughout the semester would be a formative assessment)
- ❖ Projects (project phases submitted at various completion points could be formatively assessed)
- ❖ Portfolios (could also be assessed during its development as a formative assessment)
- ❖ Performances
- ❖ Student evaluation of the course (teaching effectiveness)
- ❖ Instructor self-evaluation

High-stakes summative assessments typically are given to students at the end of a set point during or at the end of the semester to assess what has been learned and how well it was learned. Grades are usually an outcome of summative assessment: they indicate whether the student has an acceptable level of knowledge-gain—is the student able to effectively progress to the next part of the class, to the next course in the curriculum, to the next level of academic standing. Summative assessment is more product-oriented and assesses the final product, whereas formative assessment focuses on the process toward completing the product. Once the project is completed, no further revisions can be made. If, however, students are allowed to make revisions, the assessment becomes formative, where students can take advantage of the opportunity to improve.

Formative Evaluation:

Formative assessment provides feedback and information during the instructional process, while learning is taking place, and while learning is occurring. Formative assessment measures student progress but it can also assess your own progress as an instructor. For example, when implementing a new activity in class, you can, through observation and/or surveying the students, determine whether or not the activity should be used again (or modified). A primary focus of formative assessment is to identify areas that may need improvement. These assessments typically are not graded and act as a gauge to students' learning progress and to determine teaching effectiveness (implementing appropriate methods and activities).

In another example, at the end of the third week of the semester, you can informally ask students questions which might be on a future exam to see if they truly understand the material. An exciting and efficient way to survey students' grasp of knowledge is through the use of clickers. Clickers are interactive devices which can be used to assess students' current knowledge on specific content. For example, after polling students you see that a large number of students did not correctly answer a question or seem confused about some particular content. At this point in the course you may need to go back and review that material or present it in such a way to make it more understandable to the students. This formative assessment has allowed you to "rethink" and then "re-deliver" that material to ensure students are on track. It is good practice to incorporate this type of assessment to "test" students' knowledge before expecting all of them to do well on an examination.

Following are the implications of the above definitions for the class room teacher:

1. Formative evaluation is done during an instructional programme.
2. The instructional programme should aim at the attainments of certain objectives during the implementation of the programme also.
3. Formative evaluation is done to monitor learning and modifying the programme if needed before its completion.
4. Formative evaluation is for current students.

Characteristics of Formative Evaluation:

1. It relatively focuses on molecular analysis.
2. It is cause seeking.
3. It is interested in the broader sense of experiences of the programme users.
4. Its design is exploratory and flexible.
5. It tends to ignore the local effects of a particular programme.
6. It seeks to identify influential variables.
7. It requires analysis of instructional material for mapping the hierarchical structure of the learning tasks and actual teaching of the course for a certain period.

Types of Formative Assessment:

- ❖ Observations during in-class activities; of student's non-verbal feedback during lecture

- ❖ Homework exercises as review for exams and class discussions.
- ❖ Reflections journals that are reviewed periodically during the semester.
- ❖ Question and answer sessions, both formal—planned and informal—spontaneous
- ❖ Conferences between the instructor and student at various points in the semester
- ❖ In-class activities where students informally present their results.
- ❖ Student feedback collected by periodically answering specific question about the instruction and their self-evaluation of performance and progress.

Some of the instructional strategies that can be used formatively include the following:

Criteria and goal setting :

In order to be successful, students need to understand and know the learning target/goal and the criteria for reaching it. Establishing and defining quality work together, asking students to participate in establishing norm behaviours for classroom culture, and determining what should be included in criteria for success are all examples of this strategy. Using student work, classroom tests, or exemplars of what is expected helps students understand where they are, where they need to be, and an effective process for getting there.

Observations:

Observations assist teachers in gathering evidence of student learning to inform instructional planning. This evidence can be recorded and used as feedback for students about their learning or as anecdotal data shared with them during conferences.

Questioning strategies:

Asking better questions allows an opportunity for deeper thinking and provides teachers with significant insight into the degree and depth of understanding. Questions of this nature engage students in classroom dialogue that both uncovers and expands learning. When a comprehensive assessment program at the classroom level balances formative and summative student learning/achievement information, a clear picture emerges of where a student is relative to learning targets and standards. Students should be able to articulate this shared information about their own learning. When this happens, student-led conferences, a formative 1 assessment strategy, are valid. The more we know about individual students as they engage in the learning process, the better we can adjust instruction to ensure that all students continue to achieve by moving forward in their learning.

Difference between Summative and Formative Evaluation:

Gloria, Hitchok and others (1986) state the difference between the summative and formative evaluation in these words, "it is fairly straight forward to produce an 'ideal' type of either a summative or a formative profile. It is far more difficult to combine the two into one unified system. The underlying of the two appears difficult to reconcile".

Following are the main differences between these two types of evaluation:

1. They differ in purpose, nature and timing.
2. Summative evaluation is the terminal assessment of performance at the end of instruction but formative evaluation in the assessment made during the instructional phase to inform the teacher about progress in learning and what more is to be done,
3. The summative evaluation limits the use of profiles and record of achievement but they are regularly used informative evaluation.
4. The main consideration in summative evaluation is the determination of the extent to which the examinee has mastered the knowledge and skills associated with a course. On the other hand, the main consideration informative evaluation is to reveal the processes by which the examinee achieved these outcomes.
5. In summative evaluation, the assessment is done to test learning outcomes against a set of objective criteria without revealing the details of the route to the teacher which the student followed in reaching that point. Formative evaluation takes the form of a dialogue between the student and teacher in which the task is determined by both.

4.1.7. **Revisiting Key Concepts in School evaluation**

Marks:

Marking systems are frequent subjects of educational controversy because the process is difficult, because different educational philosophies call for different marking systems, and because the task is sometimes disagreeable. Claims that marks diminish the effectiveness of the educational system do not seem to be generally valid, and properly assigned marks to measure the degree of attainment of the basic objectives

of education. Two basic systems of marking, relative and absolute, are compared, and means of improving marking through institutional standardization are discussed. Pass-fail grading and other alternatives to conventional marking systems are evaluated. Weighting of various measures of achievement in assigning marks is discussed, and detailed computational procedures for assigning marks are developed.

Credit:

Credit Point refers to the 'Workload' of a learner. It is an index of the number of learning hours deemed for learning of a certain segment. These learning hours broadly classified into hours spent on attending actual lectures/tutorials/laboratory work/seminar etc and notional hours spent on reading, reflecting, discussing, attending counselling sessions, watching especially prepared videos, writing assignments, preparing for examinations, etc..

I credit point corresponds to 30 to 40 learning hours. A single course may be assigned between 2 to 8 credit points taking into account as to how many hours it would take for a learner to complete a single course successfully. The learner is said to have earned the credits on successful completion of the course including the evaluation.

Credit completion and Credit accumulation:

Credit Completion or Credit Acquisition takes place after the learner has successfully cleared all the evaluation criteria with respect to a single course. Thus, a learner who successfully completes a 4 CP (Credit Point) course will be considered to have collected or acquired 4 credits. His level of performance above the minimum prescribed level (viz, grades / marks obtained) has no bearing on the number of credits collected or acquired i.e. if, for a given course which carries 4 credits and the passing marks are 35 out of 100, then whether a student scores 40 out of 100 or 90 out of 100, the credits earned by both the students are 4. A learner keeps on adding more and more credits as he completes successfully more and more courses. Thus the learner 'accumulates' course wise credits.

Credit Bank:

The process of accumulating Credits over a period of time, leads to the idea of a ''Credit Bank". In short, this would involve maintaining all the Credit-related transactions of an individual. Credit Banking, when practiced would facilitate learner mobility and credit transfers.

Credit transfer:

Performance transfer:

When a learner successfully completes a certain academic program, he/she is allowed to transfer his /her past performance to another academic program having some common courses and Performance transfer is said to have taken place.

Block transfer:

Block transfer refers to a group of courses, such as a completed certificate or diploma program that are accepted for transfer of credit into a degree program.

Dimensions of Credit Transfer:

When a learner successfully completes the courses included in an academic program at a certain level, he/she is allowed to transfer his/her credits in some of these courses to another same-level academic program having these courses in common. This is referred to as 'Horizontal or Lateral Credit Transfer'.

'Vertical Credit Transfer', sometimes is also referred to as 'Career Laddering' is said to occur when a learner's performance in some courses within a certain academic program at a particular level is carried over to a higher-level academic program having these or equivalent courses in common.

Credit Transfer is conceived as operating along lateral (or horizontal) and vertical transfers.

Grading:

Grading in education is the process of applying standardized measurements of varying levels of achievement in a course. Another way the grade point average (GPA) can be determined is through extracurricular activities. Grades can be assigned as letters (generally A through F), as a range (for example 1 to 6), as a percentage of a total number of questions answered correctly, or as a number out of a possible total (for example out of 20 or 100).

The grading system is a methodology by which the marks secured by a student are replaced by some grade which is an alphabet. The grading scale is a varying component which varies between countries and institutions also. For the implementation of grading system credit based system will be used i.e. the whole curriculum will be divided into various subjects to be studied in a semester or year.

Whereas each subject will have its own weightage in the semester or year; the weightage of a particular subject is known as credits. In the current scenario, every academic institution is trying to impose grading system and Ministry of Human Resource Development (MHRD) is also in the favour of grading system not only in higher education but in school education also. Central Board of School Education (CBSE) has already adopted grading system in their examination pattern. The major intention behind grading system is to reduce the mental stress among the students, reduction in the accident as well as depression cases, inclusion of choice based system etc. Since every coin has two sides therefore grading system is also having its pros and cons.

Absolute v/s **Relative Grading:**

These are the two types of grading systems where absolute grading system is a percentage based method for awarding grades. In this method there will be a specific range of percentage and each range associated with a particular grade. Whereas relative grading is a rank based or curve based method for providing grades i.e. the grades will be provided on the basis of the performance of the group or class in a particular subject or course. It encompasses standard deviation which is a statistical tool. Generally a university in India follows both types of grading systems i.e absolute and relative,

The criterion behind choosing absolute or relative grading is the total number of the students in a group. If the group is having students less than twenty than absolute grading system will be followed whereas for the group above twenty; any one of the grading system can be followed preferably relative.

GPA v/s CGPA:

Semester Grade Point Average (SGPA) indicates the performance of the student in current semester whereas.

Cumulative Grade Point Average (CGPA) indicates the overall performance of the student including current performance.

Merits of Absolute Grading:

- ❖ Allows grade to be directly correlated to student's achievement.
- ❖ There is no chance of manipulation of grades.

- ❖ Easy to understand as well as easy to implement.
- ❖ It can be applicable to any group irrespective of group's strength.
- ❖ It increases the tendency of labour within group because to attain the desirable grade one has to attain a minimum percentage of awards.
- ❖ Reduces competition between students as all students having marks between fixed ranges of percentage will get the same grade. For example all students having marks in a subject between 91 and 100 will be awarded with A+ grade.

Demerits of Absolute Grading:

- ❖ It can allow all students to receive the same grade which creates problem in competitive circumstances for the judgment of the potential of the students.
- ❖ Since it's a static system for the award of grades irrespective of the nature of subject therefore sometime it becomes very challenging to get high percentage in theoretical subjects in comparison with practical or mathematical subjects.
- ❖ The grades are somehow influenced by the evaluation style of the instructor i.e. leniency or strictness in the award of marks will certainly affect the grade.

Merits of Relative Grading:

- ❖ The students will get the grades based upon their performance relative to their peers.
- ❖ Useful as well as required for today's competitive environment.
- ❖ It will reflect the actual performance of the students irrespective of the nature of the subject.

Demerits of Relative Grading:

- ❖ It cannot be applied to a small group of students..
- ❖ It undergoes moderation of grads to obtain the normal bell shaped curve, which sometimes affects the actual performance of the students.
- ❖ The actual performance of the student in a particular subject remains hidden.

Alternate Certification:

Alternate certification is a process by which a person is awarded a teaching licence even "though that person has not completed a traditional teacher certification programme.

Alternative certification programme first appeared in the 1980s. A deadline in the number of students seeking a degree in education was creating a shortage of teachers in America elementary and high schools. States began to search for a way to recruit and train people who had already earned a four year degree and wanted to become teachers.

Transparency:

Transparency means improvement of reporting to schools, families and students about student achievement and school performance and improved public reporting of individual and comparative school performance as well as reporting on the performance of schooling overall.

Internal External Proportion:

The internal external proportion means mix of assessment. It will be better understood through example, student A studies mathematics and sciences about one third of credits are likely to be internally assessed, and two thirds by external examinations.

Student B studies mainly English and the social sciences (geography, history, and economics) - typically about half of the credits will be internally assessed, and half by externally examinations.

Student C studies mainly the arts—about 60% of credits are likely to be internally assessed, and 40% externally assessed.

Impacts of standards alignment :

Some of the changes will impact on the mix of internal and external assessment.

- ❖ Achievement standards only will be used to assess curriculum linked knowledge and skills.
- ❖ Unit standards will cover other skills and knowledge.
- ❖ In each subject there will be a maximum of three externally assessed standards. This will change the ratio of internally and externally assessed standards that are available in some subjects.

There will be an examination for each externally assessed standard. Three externally assessed standards will be examined in a three hour examination. This

will give students sufficient time to complete the examination and ensure assessment is reliable.

Mix of internal and external assessment and learning experiences:

At the general level, not all students cope with the pressure of external examinations. The major benefit of internal assessment is assessment when students are ready, used in inspects of learning that simply cannot be assessed adequately by external examination. Many of these could, of course, be externally assessed by having outsiders in to look at performance. examine things being produced or to watch demonstrations.

This approach carries considerable cost and disruption to programmes without adding a significant increase in confidence in the accuracy of the assessment. We are happy to have our internal assessment moderated and find it reassuring and useful.

Governance and Implementation:

The common policy challenges that emerge concerning governance and implementation are: ensuring articulations within the evaluation and assessment framework; developing competencies for evaluation and for using feedback; securing links with classroom practice; and overcoming the challenges of implementation.

Student Assessment:

Several common policy challenges arise concerning student assessment: aligning educational standards and student assessment; balancing external assessments and teacher-based assessments in the assessment of learning and integrating student formative assessment in the evaluation and assessment framework.

Teacher Evaluation:

Common policy challenges in teacher evaluation are: combining the improvement and accountability functions of teacher evaluation; accounting for student results in evaluation of teachers; and using teacher evaluation results to shape incentives for teachers.

School Evaluation:

School evaluation presents common policy challenges concerning: aligning external evaluation of schools with internal school evaluation; providing balanced public reporting on schools and improving data handling skills of school agents.

System Evaluation:

Common policy challenges for evaluation of education systems are: meeting information needs at system level; monitoring key outcomes of the education system; and maximising the use of system-level information.

Improvement option is the basic criteria in the assessment and evaluation for updating all elements of education.

4.1.8 Let us Sum-up:

Assessment means basing decisions about curriculum, pedagogy, staffing, advising, and student support upon the best possible data about student learning and the factors that affect it. A process that involves 1) establishing goals for student learning, 2) gathering qualitative and quantitative evidence for how well students meet those goals, and 3) uses the information to improve. Assessment is the very important aspect of school system because without assessment we cannot understand the learning outcomes. We can see this assessment from the existing point of view and from the conventional point of view. The conventional assessment means summative types of assessment. Whereas updated assessment means formative assessment supported by constructivist point of view.

Assessment for Learning offers an alternative perspective to traditional assessment in schools. Simply put, Assessment for Learning shifts the emphasis from summative to formative assessment, from making judgments to creating descriptions that can be used in the service of the next stage of learning.

Whereas assessment of learning refers to the predominant kind of assessment in schools is Assessment of Learning. Its purpose is summative, intended to certify learning and report to parents and students about students' progress in school, usually by signalling students' relative position compared to other students

Assessment: The process of gathering information to monitor progress and make educational decisions if necessary. An assessment may include a test, but also includes methods such as observations, interviews, behaviour monitoring, etc.

Evaluation: Procedures used to determine whether the subject (i.e. student) meets preset criteria, such as qualifying for special education services. This uses assessment (remember that an assessment may be a test) to make a determination of qualification in accordance with a predetermined criteria.,1

Measurement, beyond its general definition, refers to the set of procedures and the principles for how to use the procedures in educational tests and assessments. Some of the basic principles of measurement in educational evaluations would be raw scores, percentile ranks, derived scores, standard scores, etc.

Test: A method to determine a student's ability to complete certain tasks or demonstrate mastery of a skill or knowledge of content. Some types would be multiple choice tests, or a weekly spelling test. While it is commonly used interchangeably with assessment, or even evaluation, it can be distinguished by the fact that a test is one form of an assessment.

Examination: The dictionary of education (1959) by Good defines examination as "An appraisal of ability, achievement, or present status in any respect; or the instrument used in making such an appraisal."

Formative Assessment: Formative assessment provides feedback and information during the instructional process, while learning is taking place, and while learning is occurring. Formative assessment measures student progress but it can also assess your own progress as an instructor.

Summative Assessment: Summative assessment takes place after the learning has been completed and provides information and feedback that sums up the teaching and learning process. Typically, no more formal learning is taking place at this stage, other than incidental learning which might take place through the completion of projects and assignments.

There is different aspect of assessment such as grading, credit, improvement option etc. According to the situation and suitability anything may be used.

4.1.9. Check your progress:

1. What is meant by assessment?

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2. What is meant by conventional meaning of assessment?

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3. What is the constructivist approach of assessment?

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4. What are the difference between conventional meaning and constructivist meaning of assessment.

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5. What are the differences between evaluation and measurement?

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6. What are the difference between measurement and test?

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7. What is meant by summative evaluation?

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8. What is meant by formative evaluation?

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9. What are the differences between summative and formative evaluation?

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10. What is meant by grading? Explain the necessity of grading in today's perspective of education.

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11. What is credit?

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12. What is meant by alternate certification?

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4.1.10. Reference:

1. Harris D, Bell C (1994). Evaluating and assessing for learning. Routledge Palmer.
2. Assessment Reform Group (2002). Assessment for learning: lOprinciples - research-based principles to guide classroom practice.
3. Black P, William D. Assessment and classroom learning (1998) Assessment in education,
4. Carroll, J. B. (1983) Psychometric Theory and Language testing in Oiler, J. W (ed) Issues in Language Testing Research Rowley, Mass: Newbury House.
5. Overview of Alternative Routes to Teacher Certificate. National Centre for Alternative Certification.
6. Cook, T. d and C. s. Reichardt (eds) (1979) Qualitative and Quantitative Methods in Evaluation Research. Beverly Hills, Calif... Sage.
7. Licingston, S. A. and M. J. Zeiky (1982) Passing Scores: A Manual for setting standards of Performance on Educational and Occupational Tests. Princeton N. J: Educational Testing Services.

UNIT 5 □ Assessment : Strategies and Practices

Structure :

5.1 Introduction :

The word "assessment" has taken on a variety of meanings within education. The term can refer to the process teachers use to grade student course assignments, to standardize testing imposed on institutions as part of increase pressure for external accountability, or to any activity designed to collect information on the success of a program, course, or curriculum.

Definition: Assessment is the systematic collection and analysis of information to improve student learning.

Why Assess? .. To Improve Student Learning

Assessment can facilitate improvement of pupils in classes and in their programs Or constantly variety of venues. When faculty members are directly considering what worked well and what didn't, and involved in the development, implementation, and using those observations and impressions to make analysis of assessment activities, a number of specific changes is ushered in the curriculum. What formal assessment benefits can result are as follows:

Potential Benefits of Assessment:

Because Assessment can provide information about the knowledge and skills students have as they enter a course	***Teachers Can*** design instruction to target the knowledge and skill levels students should have upon finishing a course and better determine the levels of thinking or reasoning appropriate for the course.
Because Assessment can provide reliable data on student learning and information from student evaluations	***Teachers Can*** rely less on the comments that appear on student evaluations as indicators of success in teaching.
Because Assessment can make available richer data about the effects of the curriculum or teach ing met/rods	***Teachers Can*** engage in more productive conversations about the status of student achievement and make better decisions about how it might be improved.
Because Assessment can yield more reliable data about instruction	***Teachers Can*** make reliable decisions about innovations or experimental projects in instruction and share successes more easily
Because Assessment can provide evidence that faculty members make a difference in student learning.	***Teachers Can*** enjoy greater satisfaction in their work as educators.
Because Assessment can offer a larger view of student needs and accomplishments	***Teachers Can*** identify directions for future instructional development.

5.2 Objectives

After studying this unit one will be able to :

- Explain the concept of Assessment and its beneficial effect on education.
- Enlist the different Assessment Strategies and Practices.
- Differentiate between the typology and levels of Assessment.
- Ellucidate the processes of analysis, reporting, interpretation ,documentation, feedback and pedagogic decisions.
- Understand the neets of diverse learners and their assessment.
- Describe different forms of school exam.

5.3 Assessment: Strategies and Methods

The different types of Assessment strategies that are in use in the present constructivist teaching learning scenario are being discussed briefly:

Observations

Description : Observation as a method of assessment is an unobtrusive tool that can yield significant information about how and why students learn. You may choose to observe any relevant interactive event, such as classes, club meetings, or social gatherings. This tool is generally used when you are interested in how students study, are concerned about the effectiveness of study sessions or other supplementary activities, or when you are focusing on the relationship between out-of-class behavior and in-class performance. Data collected through observation can be correlated with test scores and/or course grades to help provide further insight into student learning.

Strengths and Weaknesses: Data collected through observation can yield important insight into student behavior that may be difficult to gauge through other assessment methods. This method is typically designed to describe findings within a particular context and often allows for interaction between the researcher and students that can add depth to the information collected. It is especially useful for studying subtleties of attitudes and behavior. Observed data, however, is not precise and cannot be generalized to larger populations. Conclusions may be suggestive rather than definitive, and others may feel that this method provides less reliable data than other collection methods.

Performance Assessment

Description: Performance assessment uses student activities to assess skills and knowledge. These activities include class assignments, auditions, recitals, projects, presentations and similar tasks. At its most effective, performance assessment is linked to the curriculum and uses real samples of student work. This type of assessment generally requires students to use critical thinking and problem-solving skills within a context relevant to their field or major. The performance is rated by faculty or qualified observers and assessment data collected. The student receives feedback on the performance and evaluation.

Strengths and Weaknesses: Performance assessment can yield valuable insight into student learning and provides students with comprehensive information on improving their skills. Communication between faculty and students is often strengthened, and the opportunity for students' self-assessment is increased. Performance assessment, like all assessment methods, is based on clear statements about learning objectives. This type of assessment is also labor- intensive, is sometimes separate from the daily routine of faculty and student, and may be seen as an intrusion or an additional burden. Articulating the skills that will be examined and specifying the criteria for evaluation may be both time-consuming and difficult.

Portfolio Evaluations

Description: Portfolios are collections of student work over time that are used to demonstrate student growth and achievement in identified areas. Portfolios can offer information about student learning, assess learning in general education and the major, and evaluate targeted areas of instruction and learning. A portfolio may contain all or some of the following: research papers, process reports, tests and exams, case studies, audiotapes, videotapes, personal essays, journals, self-evaluations and computational exercises. Portfolios are often useful and sometimes required for certification, licensure, or external accreditation reviews.

Strengths and Weaknesses: Portfolios not only demonstrate learning over time, but can be valuable resources when students apply to graduate school or for jobs. Portfolios also encourage students to take greater responsibility for their work and open lines of discussion between faculty and students and among faculty involved in the evaluation process. Portfolios are, however, costly and time-consuming and require extended effort on the part of both students and faculty. Also, because portfolios contain

multiple samples of student work, they are difficult to assess and to store and may, in some contexts, require too much time and effort from students and faculty alike.

Pre-test/Post-test Evaluation

Description: This method of assessment uses locally developed and administered tests and exams at the beginning and end of a course or program in order to monitor student progression and learning across pre-defined periods of time. Results can be used to identify areas of skill deficiency and to track improvement within the assigned time frame. Tests used for assessment purposes are designed to collect data that can be used along with other institutional data to describe student achievement

Strengths and Weaknesses: Pre-testJpost-test evaluations can be an effective way to collect information on students when they enter and leave a particular program or course, and provide assessment data over a period of time. They can sample student knowledge quickly and allow comparisons between different students groups, or the same group over time. They do, however, require additional time to develop and administer and can pose problems for data collection and storage. Care should be taken to ensure that the tests measure what they are intended to measure over time (and that they fit with program learning objectives) and that there is consistency in test items, administration and application of scoring standards.

Reflective Essays

Description: Reflective essays may be used as an assessment tool to gauge how well students are understanding class content and issues. They are generaIly short essays (5 to 10 minutes) on topics related to the course curriculum and may be given as in-class assignments or homework. Reflective essays may be voluntary or required, open-ended questions on surveys required in student portfolios or capstone composition courses.

Strengths and Weaknesses: Reflective essays as an assessment tool can offer data on student opinions and perspectives at a particular moment in a class. Essays will provide a wide array of different responses and might lead to increased discussion among facuIty and students. On the other hand, poorly worded, ambiguous questions will yield little, and opinions and perceptions may vary in accuracy. Analysis of essay content also takes additional time and expertise.

Standardized and Local Test Instruments

Description: Selecting a standardized instrument (developed outside the institution for application to a wide group of students using national/regional norms and standards) or a locally-developed assessment tool (created within the institution, program or department for internal use only) depends on specific needs and available resources.

Knowing what you want to measure is key to successful selection of standarized instruments, as is administering the assessment to a representative sample in order to develop local norms and standards. Locally-developed instruments can be tailored to measure specific performance expectations for a course or group of students.

Strengths and Weaknesses: Locally-developed instruments are directly linked to local curriculum and can identify student performance on a set ofiocaIly-important criteria. Putting together a local tool, however, is time-consuming as is development of a scoring key/method. There is also no comparison group and performance cannot be compared to state or national norms. Standardized tests are immediately available for administration and, therefore, are less expensive to develop than creating local tests from scratch. Changes in performance can be tracked and compared to norm groups and subjectivity/misinterpretation is reduced. However, standardized measures may not link to local curricula and purchasing the tests can be expensive. Test scores may also not contain enough locally-relevant information to be useful.

Student Surveys and Exit Interviews

Description: Surveys and interviews ask students to respond to a series of questions or statements about their academic experience. Questions can be both open-ended (respondents create answers) and close-ended (respondents answer from a list of simple and unambiguous responses). Surveys and interviews can be written or oral (face-to-face) or phone. Types of surveys include in-class questionnaires, mail questionnaires, telephone questionnaires, and interviews. Interviews include structured, in-person interviews and focus group interviews.

Strengths and Weaknesses: Surveys can be relatively inexpensive and easy to administer, can reach participants over a wide area, and are·~ suited for short and non-sensitive topics. They can give you-a sense of what is happening at a given ri1om~nt in time and can be used to track opinions. Data is reasonably easy tp collect and tabulate, yet the sample may not be representative of the population (particularly with a low response rate).

Ambiguous, poorly written items and insufficient responses may not generate enough

detail for decision making. An interview can follow-up on evasive answers and explore topics in-depth; collecting rich data, new insights, and focused details. 1t can, however, be difficult to reach the sample and data can be time-consuming to analyze.

Information may be distorted by the respondent, who may feel a lack of privacy and anonymity. The success of the interview depends ultimately on the skiIls of the interviewer.

Group Discussions

Description: These are structured discussions among homogeneous groups of 6-10 individuals who respond to specific open-ended questions designed to collect data about the beliefs, attitudes and experiences of those in the group. This is a form of group interview where a facilitator raises the topics for discussion and coIlects data on the results. Emphasis is on insights and ideas.

Strengths and Weaknesses: Focus groups can provide a wide variety of data about participants' experiences, attitudes, views and suggestions, and results can be easily understood and used. These groups allow a small number of individuals to discuss a specific topic in detail, in a non-threatening environment. Data collected in this way, however, is not useful for quantitative results, and qualitative data can be time-consuming and difficult to analyze because of the large amount of non-standardized information. Ultimately, the success of this method depends on a skilled, unbiased moderator and appropriate groups of participants.

Open Book Assignments

Description: Such assignments offer students the opportunity to put together the knowledge and skills they have acquired in the major, provide a final common experience for majors, and offer teachers a way to assess student achievement across a number of discipline-specific areas. Open Book assignments are generally designed for seniors in a major or field to complete in the last semester. Their purpose is to integrate knowledge, concepts and skills that students are expected to have acquired in the program during the course of their study. This is obviously a curricular structure as well as an assessment technique and may consist of a single test (a "capstone" test) or a small group oftests designed to measure competencies of students who are completing the program. A senior assignment is a final culminating project for

seniors such as a performance portfolio or a thesis that has the same integrative purpose as the capstone test.

Course-embedded Assessment -Projects, Surprise tests, Untimed tests

Description: Course-embedded assessment refers to methods of assessing student learning within the classroom environment, using course goals, objectives and content to gauge the extent of the learning that is taking place. This technique generates information about what and how students are learning within the program and classroom environment, using existing information that instructors routinely collect (test performance, short answer performance, quizzes, essays, etc.) or through assessment instruments introduced into a course specifically for the purpose of measuring student learning.

Strengths and Weaknesses: This method of assessment is often effective and easy to use because it builds on the curricular structure ofthe course and often does not require additional time for data collection since the data comes from existing assignments and course requirements. Course-embedded assessment does, however, take some preparation and analysis time and, while well documented for improving individual courses, there is less - documentation on its value for program assessment.

OTHER INNOVATIVE MEASURES

Scoring Rubrics

Description: Scoring rubrics are typically grids that outline identified criteria for successfully completing an assignment or task and establish levels for meeting these criteria. Rubrics can be used to score everything from essays to performances. Holistic rubrics produce a global score for a product or performance. Primary trait analysis uses separate scoring of in~idual characteristics or criteria of the product or performance:

Strengths and Weaknesses: Scoring rubrics allow the instructor to efficiently and consistently look at complex products or performances and to define precise outcomes and expectations. They also are easily shared with students. However, developing an effective rubric can be time-consuming and often requires ongoing edits to fine tune criteria and anticipated outcomes. Training raters to use the scoring rubrics in a consistent manner also involves a significant time commitment.

Alumni Surveys

Description: Surveying department alumni can provide a wide variety of information about program satisfaction, how well students are prepared for their careers, what types of jobs or graduate degrees majors have gone on to obtain, starting salaries for graduates, and the skills that are needed to succeed in the job market or in graduate study.

These surveys provide the opportunity to collect data on which areas of the program should be changed, altered, improved or expanded.

Strengths and Weaknesses: Alumni surveying is usually a relatively inexpensive way to collect program data from individuals who have a vested interest in helping you improve your program as well as offering the opportunity for improving and continuing department relationships with program graduates. However, without an easily accessible and up-to-date directory of alumni, they can be difficult to locate. It also takes time to develop an effective survey and ensure an acceptable response rate.

Institutional Data

Description: A variety of departmental and student data are routinely collected at the university level. These data can enhance and elaborate on data you collect in the department. Institutional data can tell you whether the program is growing, what the grade point average is for majors in the program, and what the retention rate is for your students.

Strengths and Weaknesses: Institutional data are generally easily accessible and readily available .. Student and departmental data are collected on a systematic and cyclical schedule that can offer you both current and longitudinal information. On the other hand, these data sets are generally large and may be difficult to sort through, particularly for those individuals who are not used to working through large databases.

The data may be less useful to specific departments or programs because the information collected is very often general (age, gender, race, etc.) and may not directly relate to program goals and objectives.

Transcript Analysis

Description: Transcript analysis involves using data from student databases to explore course-taking or grade patterns of students. This tool can give you a picture of students at a certain point in their academic careers, show you what classes students took and in what order, and identify patterns in student grades. In sum, transcript

analysis gives you a more complete picture of students' actual curricular experiences. Specific information can be drawn from transcripts to help answer research questions, and course pattern sequences can be examined to see if there is a coherence to the order of courses taken.

Strengths and Weaknesses: Transcript analysis is an unobtrusive method for data collection using an existing student database. This information can be linked to other variables such as sex or major, or used to measure outcomes. It is important to keep in mind, however, that course patterns may be influenced by other variables in students' lives that don't show up on their transcripts. Also, solutions that arise from results of the analysis may not be practical or easily implemented. It is critical to have specific questions whose answers can lead to realistic change before conducting the analysis.

5.4 Typolgy and Levels of Assessment Item :

Assessment can be either formal or informal depending upon the level and nature of activities designed to assess students' achievement. The different types and levels of assessment are:

Direct method "require students to display their knowledge and skills as they respond to the instrument itself. Objective tests, essays, presentations, and classroom assignments all meet this criterion

Indirect methods such as surveys and interviews ask students to reflect on their learning rather than to demonstrate it" (Palomba and Banta, 1999, pp. 11-12).

Qualitative measures "rely on descriptions rather than statistical interpretation. The different types of Qualitative Assessment Techniques are

- ethnographic studies
- participant observations
- open-ended questions on surveys and interviews
- writing sample
- exit interviews
- formal recitals

Quantitative measures assess teaching and learning by collecting numbers" and analyzing numeric data using statistical techniques. The different types of Quantitative Assessment Techniques are-

-GPA

-primary trait analysis scores

- exam scores

5.5 Assessment of Diverse Learners.

Examples of Assessment Techniques	**Learning Context**	**Nature of Learner**	**Learning Needs to be Assessed**
Self-reports	classroom assessment focus groups interviews phone surveys/interviews reflective essays surveys (home-grown or standardized)	alumni employers enrolled students faculty graduating students entering students off-campus supervisors parents staff	*Perceptions about:* campus climate perceived learning evaluate processes value-added educational outcomes attitudes values
Achievement Tests	test score analysis content analysis scoring rubrics	competitions embedded questions on exams locally developed exams oral thesis defenses oral exams, recitals standardized tests	mastery and knowledge of principles, skills value-added
Observations	case studies observations	campus events (sports, theater) classes club meetings faculty offices fieldwork sites student services offices	attitudes campus climate interactions processes services student involvement student learning
Student Academic Work	content analysis scoring rubrics	capstone course products homework papers portfolios presentations, performances publications research reports term papers, theses videotapes	mastery and knowledge of principles, skills values processes value-added
Campus Documents	course x program objectives matrix course assignment x program objectives matrix content analysis analysis of forms	administrative units departments programs student services offices course syllabi, etc. student transcripts	accuracy cohesion/consistency efficiency structure for promoting objectives processes
Examples of Assessment Approaches Available Data	Assessment Tool	Who or What is Analyzed?	What Can Be Assessed?

Self-reports	classroom assessment focus groups interviews phone surveys/interviews reflective essays surveys (home-grown or standardized)	alumni employers enrolled students faculty graduating students entering students off-campus supervisors parents staff	Perceptions about: campus climate perceived learning evaluate processes value-added educational outcomes attitudes values
Achievement Tests	test score analysis content analysis scoring rubrics	competitions embedded questions on exams locally developed exams oral thesis defenses oral exams, recitals standardized tests	mastery and knowledge of principles, skills value-added
Observations	case studies observations	campus events (sports, theater) classes club meetings faculty offices fieldwork sites student services offices	attitudes campus climate interactions processes services student involvement student learning
Student Academic Work	content analysis scoring rubrics papers	capstone course products homework values processes value-portfoli.presentations, performances publications research reports term papers, theses videotapes	mastery and knowledge of principles, skills added
Campus Documents	course x program objectives matrix course assignment x program objectives matrix content analysis analysis of forms	administrative units departments programs student services offices course syllabi, etc. student transcripts	accuracy cohesion/consistency efficiency structure for promoting objectives processes

5.6 Analysis, Reporting, Interpretation, Documentation, Feedback and Pedagogic Decisions

The American Association of Higher Education (AAHE) asserts in its "Nine Principles of Good Practice for Assessing Student Learning" (1992) that ...

...Assessment makes a difference when it begins witn issues of use and illuminates questions that people really care about.

An assessment plan's value to the department lies in the evidence it offers about overall department or program strengths and weaknesses, and in the evidence it provides for change (Wright, 1991). The key factors in attaining the real value of all your work is to make the most out of the information you collect through appropriate analysis and interpretation.

5.5.1. Best Ways to Analyze, Report, Interpret and Document Assessment Information are:

In its faculty handbook on program assessment, the University of California at Chico (1998) recommends:

- Presenting data in relation to identified goals and objectives
- Selecting and using appropriate procedures for data analysis
- Using qualitative and quantitative methods to present a well-balanced picture of the program
- Keeping in mind the audiences who will access and use the data, and varying your analysis and reporting procedures according to the identified audience
- Preparing written statements that identify and elaborate on the pros and cons of the academic program
- Developing recommendations based on analysis of data, and using identified goals as a framework within which to accomplish these changes

Also consider the extent to which your findings can help you answer the following questions :

- What do the data say about your students' mastery of subject matter, of research skills, or of writing and speaking?
- What do the data say about your students' preparation for taking the next step in their careers?
- Are there areas where your students are outstanding? Are they consistently weak in some respects?

- Are graduates of your program getting good jobs, accepted into reputable graduate school.

5.5.2 Feedback - The Feedback approach to assessment practices addreesses the following issues:

1. Did you have a positive or negative experience implementing your assessment methods?
2. What were students' reactions to the assessment process?
3. What did you find especially effective in the assessment process?
4. What did you particularly dislike about the process?
5. What would you change about the process? Why?
6. What will you do again? Why?

5.5.3 Pedagogic Decisions: In designing Pedagogic Decisions consider and include the following

Learning Processes	To what learning experiences and strategies will students be exposed to achieve these learning objectives?
Assessment Methods	By what measure(s) will you know that students are meeting learning objectives?
	From whom, and at what points, will you gather data?
	How will the information be collected?
Assessment Processes	When will you conduct the assessment? Who will be responsible for each component? What is the overall timeline for the assessment plan?
Status, Outcomes and Results	What did you find out? How do the data support these findings?
Decisions, Plans and Recommendations	Based on your findings, what do you plan to do now?

5.7 School Exam:

Examination according to **H.C. Barnard** and **J.A. Lauwreys** is

"A test of knowledge acquired ,or more generally a means of intellectual capacity or ability There are three types of examination 1) a set of questions to check a pupil's progress on the result of a course of instruction; 2) A mean of qualifying candidates for a certificate or degree in which they are required to attain a certain standard;3)a competitive test on the strength of which a scholarship or award is made to the successful candidate. Examination may be conducted by means of written answer to set questions or by local methods. "

School Exams is used to connote the process of estimating learning on the basis of a few questions posed to learners under specified conditions. Specifications in respect of time, duration, mode of questioning. The two landmark in recent school scenario that have exerted potential influence in school system are NCF 2005 and RTE 2009.

5.7.1 Salient Features of NCF 2005.

The NCF 2005 emphasizes a National System of Education with special focus on:

l) Values enshrined in the Constitution of India.

2) Reduction of Curriculum Load.

3) Ensuring quality Education For AII(EFA)

4) Systemic Changes

4) Common School System

The NCF 2005 has recommended five guiding principles for curricular development:

a) Connecting Knowledge to life outside school

b) Ensuring that learning shifts from rote method.

c) Enriching curriculum so that it goes beyond text books.

d) Making examination more flexible and integrating them with classroom life.

e) Nurturing an overriding identity informed by caring concerns within the democratic polity of the country.

Apart from these five guiding principles ,NCF 2005 also emphasizes Learning without Burden. It emphasizes on learning and construction of knowledge.

- Correspondence between learner development and learning is intrinsic to curricular practices.
- Knowledge is different from information
- Organising learning experiences for construction of knowledge and creativity
- Connecting knowledge across disciplinary boundaries for insightful construction of knowledge.
- Learning experiences for developing critical perspectives on social issues.
- Plurality of textbooks and other material incorporating local knowledge mediated through constitutional values and principles.

5.7.2 RTE ACT 2009

The Right of Children to Free and Compulsory Education Act (2009) or Right to Education Act (RTE) enacted on 4th August 2009, describes the modalities of the importance of free and compulsory education for children between 6 and 14 in India under Article 21A of the Indian Constitution. The important features are:

❖ Free and Compulsory Education -It is obligatory for the Government to provide free and compulsory elementary education up to class 8th to each and every children. The free education includes the provision of textbooks, uniforms, writing materials, special materials for children with disabilities.

❖ Minimum Standards for Teaching Learning-RTE Act lays down norms and standards relating to Pupil - Teacher Ratios, classrooms, separate toilets for girls, drinking water facility.number of school-working days, working hours of teachers etc.

- Admission for all-The Act mandates that every student irrespective of their abilities and disabilities be admitted to school to enable them to come up to age appropriate learning level.

❖ Quantity and Quality of Teachers-It provides for rational deployment of teachers

by ensuring the specified Pupil-Teacher Ratio is maintained ,appointment of trained teachers and also ensures that there is no urban-rural imbalance .

❖ No Discrimination and Harassment -The Act prohibits physical punishment and mental harassment, discrimination based on gender, religion, caste, class etc.

❖ All Round Development-RTE emphasizes building child's knowledge ,human potential and talent..

❖ No Detention-RTE Act mandates that no child can be held back or expelled from school until class 8th. It mandates Continuous Comprehensive Evaluation(CCE) method of assessment.

❖ Justiciable-The RTE Act is justiciable and is backed by a Grievance Redressal Mechanism that gives opportunity to people to take action against non compliance of various provisions of the act.

❖ Establishment of School Management Committees (SMC) to strengthen participatory democracy and governance in elementary education.

❖ Reservation -According to this Act all private schools to reserve 25 percent of the seats for children belonging to socially disadvantaged, economically weak to ensure better inclusion.

5.8.1 Unit End Exercises.

2) Long Answer Type

i) Explain the concept of Assessment with special reference to teaching learning situation.

ii) Write down the salient features ofNCF 2005.

2) Short Answer Type.

i) Differentiate between Portfolio And Open Book Assessment.

ii) Enlist four types of assessment mentioning the category of learners

3) Objective Type.

i) EF A stands for ----------.

ii) ---------- is an assessment strategy suited for higher education learners.

iii) RTE 2009 was enacted under ---------- of the Constitution.

5.8.2 Check Your Progress.

1) Name two innovative strategies of Assessment.

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2) Enumerate two important clauses of RTE 2009

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3) Identify two guiding principles ofNCF200S.

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4) State two pedagogic skills that can be assessed.

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Answers To Check Your Progress.

1) Transcript Analysis,

2) Free and Compulsory Education, No Detention

3) Connectin g Knowledge to life outside school, Ensuring that learning shifts from rote method

4) Status, Outcome and results, Decisions, plans and recommendations

5.9. References

Armstrong, M. A. (1989). The Delphi technique. Princeton Economic Institute. hllo://www.pei-intl.com/Research/MARKETS/DELPHI.HTM

Assessment in Practice. San Francisco: Jossey-Bass. Southern Illinois University website: www.siue.edul-deder/assess

Converse, J. M. & Presser, S. (1986). Survey questions: Handcrafting the standardized questionnaire. Newbury Park: SAGE Publications.Dyke, J. V., & Williams, G. W. (1996). Involving graduates and employers inassessment ofa technology program. In Banta. T. W., Lund, J. P., Black, K. E., &Oblander, F. W. (eds.)

Julian, F. D. (1996). The capstone course as an outcomes test for majors. Banta,

Morgan, D. L., & Krueger, R. A. (1997). Thefocus group kit (Vols. 1-6).Thousand Oaks, CA: SAGE Publications

OAPA Handbook PROGRAM-Based Review and Assessment· UMass Amherst 43

T. W., Lund, J. P., Black, K. E., & Oblander, F. W. (Eds.). In Assessment in practice, pp. 79-81. San Francisco: Jossey- Bass Publ ishcrs.

Upcraft, M. L., Gardner, J. N., & Associates. (1989). The freshman year experience: Helping students survive and succeed in college. San Francisco: Jossey-Bass Publishers

মানুষের জ্ঞান ও ভাবকে বইয়ের মধ্যে সঞ্চিত করিবার যে একটা প্রচুর সুবিধা আছে, সে কথা কেহই অস্বীকার করিতে পারে না। কিন্তু সেই সুবিধার দ্বারা মনের স্বাভাবিক শক্তিকে একেবারে আচ্ছন্ন করিয়া ফেলিলে বুদ্ধিকে বাবু করিয়া তোলা হয়।

— রবীন্দ্রনাথ ঠাকুর

ভারতের একটা mission আছে, একটা গৌরবময় ভবিষ্যৎ আছে, সেই ভবিষ্যৎ ভারতের উত্তরাধিকারী আমরাই। নূতন ভারতের মুক্তির ইতিহাস আমরাই রচনা করছি এবং করব। এই বিশ্বাস আছে বলেই আমরা সব দুঃখ কষ্ট সহ্য করতে পারি, অন্ধকারময় বর্তমানকে অগ্রাহ্য করতে পারি, বাস্তবের নিষ্ঠুর সত্যগুলি আদর্শের কঠিন আঘাতে ধূলিসাৎ করতে পারি।

— সুভাষচন্দ্র বসু

Any system of education which ignores Indian conditions, requirements, history and sociology is too unscientific to commend itself to any rational support.

— Subhas Chandra Bose

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