

**Institute of Distance and Open Learning
Gauhati University**

**MA in Education
Semester I**

**Paper 102
ADVANCED EDUCATIONAL PSYCHOLOGY**



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Syllabus

102: Advanced Educational Psychology

- Unit 1 : Learning :** Meaning and Nature, Theories of Learning- Connectionism, Gestalt Theory, Field Theory, Classical Conditioning, Operant Conditioning. Constructivism and their Educational Implications.
- Unit 2 : Variables in Human Learning:** Maturation in learning, Motivation in learning, Meaning of intrinsic /extrinsic motivation. Theory of Achievement Motivation, Maslow Need Theory, Role of Teacher, Transfer of Training/ Learning, Types of Transfer of Learning, Theories of Transfer of Learning- (1) Theory of Mental Discipline (2) Theory of Identical Elements or Components (3) Theory of Generalisation of Experience - Role of Teacher in Transfer of Learning.
- Unit 3 : Intelligence:** Meaning and Nature, Influence of Heredity and Environment on Intelligence, The Piagetian Theory of Intellectual Development, Concept of Multiple Intelligence, Social Intelligence and Emotional Intelligence.
- Unit 4 : Reasoning, Problem Solving and Creative Thinking:** Characteristics of Problem Solving, Nature, Development and identification of creativity and fostering creativity.
- Unit 5 : Personality:** Meaning and Nature, Development, Genetic and Cultural Factors of Personality. Theories of Personality-Trait Theory and Type Theory with special reference to Freud, Adler, Roger, Cattell. Adjustment Mechanism and Mental Hygiene.

Unit I

Learning

Contents:

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1.0 Introduction

In the educational process central idea is learning. The learning process of human life starts from the birth and continues till death. In our day to day life we collect numerous experiences which ultimately the cause of human learning. Every individual's in this world born with certain number of innate dispositions which determines its initial responses. These initial responses enable him to adapt himself to the simple environment which is around him. So, educational psychology deals with the learning process which is an important aspect of teaching and learning. With this regard teachers and parents have to provide suitable atmosphere for children to learn. The main objective of school as institution is to bring certain desirable changes in behavior of children through the process of learning. As soon as the children come into contact with the environment and he starts reacting and ultimately the foundation of learning laid down.

1.1 Unit Objectives:

After going through this unit, you will be able to:

- Explain about the meaning and nature of learning.
- Explain about different factors affecting learning and its importance for teacher.
- Describe different theories of learning and their educational implications.
- Learn and clearly differentiate different laws of learning.
- Describe modern educational theory constructivism and its educational implications.

1.2 Meaning of Learning:

Learning is the modification of behavior through experience and training. Man is influenced much by his environment. He is flexible in his attitude, interest, appreciation, skills and abilities which are primarily the product of learning. What a man learns is determined by his constitution and on the other hand by the demands which environment makes upon him. Learning means to bring changes in the behavior of the organism. It is nothing but capacity of adaptation of changing situation of life. Learning situations are most common and natural in life and every one of us learn for that situation. So, learning is an active process which depends on the activity of the individual himself. On the other hand, the process or natural growth or maturation, is a process of development with which the individual himself has little to do. Moreover, learning is a purposeful and goal oriented activity. It is a product of environment which is continuous and universal process to attain experiences. Experiences, direct or indirect, play a dominant role in moulding and shaping the behavior of individual from the beginning. Thus, in brief, learning is change in human disposition and capability which can be retained and which is not dependent only on the process of development.

In the opinion of Peel, "Learning is a change in the individual following upon changes in his environment." He summarizes the process of learning as under:

- a) Learning is not a reflex action. It means it does not include changes due to fatigue, illness, maturation and use of intoxication.

- b) Learning is not directly observable but manifest in the activities of the individual. The learning can be exposed by different activities only.
- c) Learning may be for conscious purposes or it may be for biological and social adjustment.
- d) It can be for adjustment or maladjustment. It can create a socially-adjusted individual or it may give rise to antisocial behavior.

Thus, in the words of Bernhardt defines learning as, “The more or less permanent modification of an individual’s activity in a given situation, due to practice in attempts to achieve some goal or solve problems”.

Different Psychologists define learning in different ways. Following definitions give a clear picture about the concept of learning.

- According to Crow and Crow, “Learning is the acquisition of habits, knowledge and attitude. It involves new ways of doing things and it operates in an individual’s attempts to overcome obstacles or to readjust to new situations. It represents progressive change in behaviour. It enables him to satisfy interest to attain goals.”
- C. V. Good in Dictionary of Education, explained the term ‘learning’ as a “Change in response or behaviour (such as innovation, elimination or modification of responses, involving some degree of performance) caused partly or wholly by experience, such experience being in the main conscious, but sometimes including significant unconscious components, as is common in motor learning or in reaction to unrecognized or subliminal stimuli; includes behaviour changes in emotional sphere, but more commonly refers to the acquisition of symbolic knowledge or motor skills, does not include psychological changes, such as fatigue or temporary sensory resistance or non-functioning after continued stimulations.”
- According to M. H. Marx, “Learning is relatively enduring change in behaviour which is a function of prior behaviour.”

Thus, from the above definitions it can be stated that learning should enable us to make best use of things around us. It depends on practice and experience which makes learning perfect and ultimately bring changes in behaviour.

1.3 Nature of Learning:

Learning is not limited to school only; it begins long before and may continue long after school days. It may be stated that learning should enable us to make the best use of the things around us. So the acquisition of abilities which enable us to adjust ourselves in an effective manner in an environment and to control it successfully is said to be the aims of learning.

The concept of learning will be more clear with the following discussion about nature of learning:

- **Learning Implies Change:** Learning includes all those factors which bring change about our behavior. Different factors affect differently to change our behaviour. So, before learning our behaviour is different than the behaviour after learning.
- **Learning Implies Development:** Every individual wants comfortable adjustment on his environment. There is a constant interaction between the individual and his environment. The individual tries to adjust himself physically, mentally, socially, intellectually, etc after learning individual know the correct way to adjust him in his environment.
- **Learning is a Lifelong Process:** our life starts at the moment of birth and continues till death. In every moment of our life we face enormous problems. Learning helps us to solve these problems and also helps to modify our behaviour.
- **Learning is Activity:** in the teaching-learning process, the activity of the learner counts more than the activity of the teacher. This is the main principle of learning and it has been recommended by all modern educationists. In fact, all progressive methods of education such as Dalton plan, Project method, the Montessori Method, Basic education etc. are based on this.
- **Acquisition of New Knowledge in terms of Learning:** Child learns different things in everyday life and also learns by solving different problems. When the child comes into contact with his environment for the first time he learns many things and modifies his behaviour. But as the time goes on, he modifies his behaviour more effectively by acquiring new knowledge on the basis of previous knowledge.
- **Learning should have a Definite Purpose:** Everyone has a definite purpose. Without any purpose our life is meaningless. So, a well definite

purpose moves the child in right direction and enables him to have proper and successful learning, the permanence of learning depends on the strength of purpose.

- **Learning has a Wider Scope:** The learning process includes not only the knowledge of 3R's and other text booked knowledge. It also includes the day-to-day experiences. Life presents enormous opportunities to learn and learning categories are so much that it is difficult to limit into one.
- **Learning and Intelligence:** Intelligence and learning process is closely related and without of one other is impossible. Intelligence has great significance in learning process. When the child begins to learn he need a minimum level of intelligence. Because an intelligent child has basic mental drive to do things.
- **Learning and Maturation:** Maturation is a natural process of physical development whereas learning is a process which takes place as a result of some stimuli from without. These stimuli results in some activity and experiences.

STOP TO CONSIDER :

- Learning is the modification of human behaviour which is affected by both internal and external factors.
- Learning is acquired knowledge by individual from the environment; it (learning) depends on maturation and it (maturation), whereas, is the automatic and natural physiological process of growth and development.

1.4 Factors Affecting Learning:

Learning is a very complex process and is affected by a various factors. These factors may relate to learner, learning situation, learning process and learning resources and the like.

Following are some of the important factors of learning:

- Physical and mental health of the learner.
- Socio-economic and cultural background of the learner.
- Previous knowledge of the learner.

- Goals and philosophies of life.
- Availability of material and non material resources for effective implementation of the process of learning.
- The effectiveness and suitability of methods of education, the principles of correlation of learning, use of sensory channels, practice and feedback, self learning etc.
- Socio-cultural and economic background as well as social norms, values, beliefs, attitudes etc of the society.

1.5 Importance of Learning for Teachers:

To make the teaching effective, knowledge of learning process is very essential for teachers. The main objective of school is to bring certain desirable changes in behaviour through learning process. The learning helps the teacher in different ways for successful teaching. The importance of learning in teaching-learning situations is worth mentioning:

- ❖ Learning helps teacher to know the operations and approaches to develop better teaching strategies. The teacher having the knowledge of learning can operate the learning process well and choose the correct approach of learning.
- ❖ Teacher having the knowledge of learning can understand the individual differences in learning among learners. Those teachers can adopt their teaching according to their requirements by using different teaching methods.
- ❖ The most important contribution of learning is the concept of motivation. The teacher may know the needs and motives of children at different age level. He can organize those activities which creates interest and motivation in children.
- ❖ Teacher having the knowledge of learning can know the process of remembering and forgetting and can utilize efficient method of minimizing the percentage of forgetting. Those teachers can assist the students to apply various techniques for better remembering.
- ❖ They can help the students to transfer of skills and information acquired in the classroom to the life situation. They can assimilate the knowledge of school with the practical life problems.

- ❖ Teachers having the knowledge of learning can diagnose special difficulties of children and help them individually to overcome those problems. Modern psychology of learning lays more emphasis on social psychology of learning.
- ❖ The teachers who have knowledge of psychology of learning can create learning situation well. These teachers can improve the social climate for learning by providing conducive environment in the classroom.
- ❖ Teachers having the knowledge of learning psychology can know the fundamental principles of learning and by using these principles he can make his teaching learning process effective. Those teachers can more effectively guide the classroom teaching learning.

Thus, learning psychology plays a significant role which can assist teacher in the process of learning.

CHECK YOUR PROGRESS-1

1. How did Crow and Crow define learning?
2. Mention two important nature of learning.
3. Mention some important factors of learning.

1.6 Theories of Learning:

Psychologists sometimes try to find out the true nature of learning and as a result many theories have been developed on the basis of different experiments. Theories of learning are organized set of principles that aims to explain how individuals acquire, retain and recall knowledge in different situations. It attempts to explain the mechanism of behaviour involved in learning process. The principles, theories and laws of the theories can be used to guide us in selecting instructional tools, techniques and strategies to promote our learning. The most acceptable definition of a theory is that of Melvin H Marx (1970), who defined “a theory is a provisional explanatory proposition or set of propositions, concerning some natural phenomena and consisting of symbolic representation of:

- a) The observed relationships among independent and dependent variables.
- b) The mechanisms or structures presumed to underlie such relationships or

- c) Inferred relationships and underlying mechanisms intended to account for observed data in the absence of any direct empirical manifestation of the relationships.

The entire theories of learning can be divided into two broad categories namely Stimulus Response theories and cognitive field theories. The Stimulus Response theories are again sub-divided into two categories according to pleasure and displeasure of the organism. The underlying theories are under—

A-(1) S-R Theories without Reinforcement

- Conditioning by Pavlov.
- Watson's learning theory.
- Guthrie's learning theory.

A-(2) S-R Theories with Reinforcement

- Thorndike's Connectionism theory.
- Hull's theory.
- Skinner's Operant Conditioning theory.

Under Category B- Cognitive Field Theories

- Gestalt theory of learning.
- Lewin's theory of learning.
- Tolman's Sign Gestalt theory.

As a result of enquiry and investigation a number of theories have come into existence. These theories have been classified into two major heads (Schools of Psychology)

- Behaviourist theories
- Cognitive theories

Behaviourist theories belonged to the school of behaviorism where learning is interpreted in terms of connection and associations between stimulus and response. These theories of learning were developed in the early 1900s and became dominant in early 20th Century. The essence of behaviourism is that learning is a process of a change in behaviour of the organism due to the acquisition, reinforcement and application of associations between environmental stimuli and observable response. Under this category Guthrie's continuity theory, Throndike's trial and error learning, Hull's drive reproduction theory, Classical and Operant conditioning etc.

Under Cognitive groups many theories have been included which pay more importance on Gestalt and Cognitive Psychology. In place of purely mechanical approach these theories emphasize the rule of purpose, insight, understanding, memory, reasoning and other cognitive factors. Under this category insightful learning, Lewin's field theory and Tolman's Sign Gestalt theory and Tolman's Sign Gestalt theory may be included.

STOP TO CONSIDER :

- Learning theories are of two categories—Stimulus-response theories and Cognitive field theories.
- Connectionism theory is also known as Thordike's trial and error theory of learning.
- According to Thorndike there are three important Laws of learning: Law of readiness, Law of effect, Law of Exercise.

1.6.1 Connectionism Theory

It is one of the most primitive and simple theory of learning. Edward Lee Thordike (1874-1949) was the main propounder of the theory of connectionism. He was American psychologists who conducted stimulus response theory experiment with the help of animals. He was the first to study the subject of learning systematically using standardized procedures and apparatus.

Thorndike introduced the term reward or reinforcement for learning. Traditionally, there has been less emphasis in reinforcement theories regarding control of stimuli instead more emphasis is laid on control of responses. The responses which are followed by satisfaction or pleasure are reinforced and become more probable in future. This theory is based on the concept that bonds or connections are formed between stimulus and responses. It is related to conditioning in that it utilizes the concept of association but differs in that more stress is placed on the role of the organism. This theory emphasizes that the behaviour begins with reflexes and natural responses and new behaviours result from the acquisition of new bonds through experience. This connection depends on a number of variables which operate in the environment and the organism. These include frequency, recency, intensity, vividness, mode of the subject, resulting in satisfactions, similarities

of situations and capacity of the subject. So this theory is also known as bond theory. On the basis of his experiments he formulated three major laws of learning and supplementary principles.

On the basis of different experiments Thorndike explain that learning involves through trial and error connection. He also named this principle as trial and error learning. It is committed error before it hit upon the correct move. Moreover, he again explains that learning is the result of formation of connection in the nervous system. According to him, learning is gradual, not insightful. It depends upon the number of trials fulfilled by the learner. His experiments proved that learning is the direct activity not mediated by ideas. It is a simple semi mechanical phenomenon, a process of establishing simple connection between stimulus and response.

Thorndike's Experiment: Puzzle Box Experiment:

The experiment of Thorndike was widely known as puzzle box experiment where he has used a puzzle box developed by some certain mechanisms. The experimental set up was very simple. In this experiment a hungry cat was confined in a puzzle box and outside the box a dish of food was kept. In order to come outside from the box the cat had to pull a string of the box. As he saw the cat made several random movements of jumping and running to get out of the box. At last the cat came out and got the food. Thorndike immediately put the cat in the puzzle box for next trials. The cat again made random movements to come out of the box and finally succeeded. Over a series of trials the cat became increasingly efficient in getting out of the box. The number of errors reduced slowly and at last it came into zero. Thorndike concluded that the learning of cat in the puzzle box in terms of formation of connection, when connection is satisfactory the learning is more easier. Thus, learning according to this theory is fixation of correct responses and avoiding the incorrect responses through trial and error. The time taken to repeat the rewarding response decreases with successive trials.

The experiment summed up the following stages in the process of learning:

- Drive: in the experiment, drive was hunger and was intensified with the sight of the food.
- Goal: The goal was to get the food by getting out of the box.

- **Block:** the cat was confined in the box with a closed door to see the responses.
- **Random movements:** Cat persistently made random movement and ultimately succeeded to pull the door.
- **Selection of proper movement:** Gradually, the cat selected the proper way of doing the tasks from its random movements.
- **Fixation:** The cat learnt the proper way of opening the door by eliminating all the incorrect responses and fixing the only right responses. Now it was able to open the door without any error or in the other words, it learnt the way of opening the door.

Thorndike's Laws of learning:

Thorndike on the basis of different experiments propounded three major laws of learning and five supplementary principles. These laws are originally the outgrowth of experiments in the field of animal psychology.

- **Law of Effect:** According to Thorndike, this law states that “ when pleasant or satisfying consequences follow or attend a response, the latter tends to be repeated. When painful or annoying consequences attend a response, it tend to be eliminated” .The law of effect maintains that when modifiable connection between stimulus and response has been made it strengthen the learning if the result is satisfactory and it made weakened if it leads to annoyance. All pleasant experiences have a lasting influence and are remembered for a long time. On the other hand, unpleasant ones are soon forgotten. Therefore, pleasure and displeasure decides the degree of effectiveness in learning.

The law of effect has been criticized by different psychologists. He replied that by satisfying state of affairs is meant one which the animal does nothing to avoid whereas annoying state of affairs the animal does nothing to preserve. So, in the year 1932 he revised his law and said that while pleasant situation resulted in strengthening the connection an unpleasant situation decrease the strength of connection.

- **Law of Readiness:** which states that “when a bond is ready to act, the act gives satisfaction and not to give annoyance. When a bond which is not ready to act is made to act , annoyance is caused.” Readiness according to Thorndike is the preparation for action which is very essential for learning. If a child ready to learn than he learns more quickly,

effectively and with greater satisfaction. so, the right moments concerning the learning situation and the learners state of mind should be recognized and maximum use should be made of knowledge by the teacher. Besides these readiness is also dependent upon both maturation and experience of the learner. Thus, this law indicates the learner's state to participate in the learning process.

- **Law of Exercise:** which states that “other things being equal, exercise strengthens and lack of exercise weakens the bond between stimulus and response.” Here, other thing implies specially the consequences of response recognized by the law of effect. Thus, Exercise or practice makes learning perfect.

This law is further divided into law of use and law of disuse. Law of use states the other things being equal, the more frequently a modifiable connection is made, the connection will be stronger whereas when modifiable connection is not made over a period of time the strength of connection is weakened. Therefore, the law of exercise as a whole emphasizes the need for repetition.

Thorndike after 1930 revised this law of exercise because both the law of use and disuse don't work as effectively as propounded by him earlier. Mechanical use or disuse does not necessarily lead to effective learning or total forgetting.

Besides these three major laws of learning Thorndike formulated five supplementary principles as—————

- a) Principle of multiple response
- b) Principle of mental set.
- c) Principle of partial activity.
- d) Principle of analogy or assimilation.
- e) Principle of associative shifting.

Thus, the main findings of this theory can be summarized as that learning is the result of S-R connections formed in the brain and reinforced by some reward which acts as a motivator for repeating the same action. The transfer of learning is explained in terms of identical elements in two situations and forgetting is caused by lack of practice.

1.6.2 Theory of Conditioning and Its Educational Implication:

Many psychologists, specially the behaviourists consider that conditioning theory gives a more or less adequate explanation of many phases of learning process. This theory takes into account the fundamental concept of connectionism. The concept of this theory is that learning is the linking of a response to a stimulus. The human organisms as well as many other organisms, have an innate fund of responses, tendencies or reactions which are activated when appropriate stimuli are presented to them.

CHECK YOUR PROGRESS-1

4. What are different types of theories of learning?
5. Who is known as the father connectionism?
6. Who propounded laws of learning?
7. What are the supplementary principles propagated by Thorndike?

1.6.2.1 Classical Conditioning

Classical Conditioning was developed by Russian Psychologist's by Ivan Pavlov. He was basically interested in studying the gastric secretion in dogs. While studying the functioning of digestive system he noticed that the dog has shown natural response with the food steps of caretakers. Pavlov began to study this phenomenon which is called conditioning. As a result he developed the theory of classical conditioning which played a significant role in the process of learning. The salivating process, well before the food was put into mouth of the dog is called psychic secretion. This secretion was basically known as classical conditioning.

Conditioning means modification of natural response. Natural stimulus results in natural response. But according to condition response natural stimulus is substituted by an artificial stimulus and by this way new connection between artificial stimulus and natural response is created. According to Pavlov, Classical Conditioning is a process in which a natural stimulus, by pairing with a natural stimulus, acquires all characteristics of natural stimulus. Classical Conditioning is sometimes called substitution learning because we substitute a natural stimulus in place of natural stimulus. Modern Psychologists have interpreted classical conditioning as signal

learning. It is also known as learning by habit formation. It is based on the principle of association and substitution.

Classical Conditioning Experiment:

The basic phenomenon of classical conditioning is very simple. Pavlov restricted his experimental studies to the process of secretion of saliva in dog. Pavlov kept the dog and brings it to the experimental table which was fitted with certain mechanically controlled devices. The dog was made comfortable and distraction was excluded as far as possible. The observer himself remains hidden from the dog but was able view the experiment by set of mirrors. Arrangement was made to give food to the dog through an automatic mechanism. He also arranged a bell to ring every time food was presented to the dog. When the food was put before the dog the bell was rung, there was automatic secretion of saliva from the mouth of the dog. The activity of presenting the food accompanied with the ringing of bell was repeated for several times and amount of saliva secreted was measured.

After several trials the dog was given no food but the bell was rung and the amount of saliva secretion in this situation was measured. It was found that in the absence of food, the ringing of bell caused the dog to secrete saliva. The mechanism of Classical Conditioning is comprised of the following:

- a) Unconditioned Stimulus (UCS): Food which invariably causes a natural response.
- b) Unconditioned Response (UCR): Salivation which results when unconditioned stimulus is presented.
- c) Conditioned Stimulus (CS): The sound of the bell which does not bring about salivation or desired response when presented alone and will only produce salivation when it is conditioned with the food.
- d) Condition Response (CR): Salivation process with the sound of the bell is particular behaviour that an organism learns to produce when the Condition Stimulus is presented.

Model of Classical Conditioning is given below:

- 1. UCS..... UCR
(Food) (Saliva)

- | | |
|--------------------------|----------|
| 2. CS+UCS..... | UCR |
| (Sound of the Bell+Food) | (Saliva) |
| 3. CS..... | CR |
| (Sound of the bell) | (Saliva) |

Thus, Classical Conditioning can be defined as “a process in which a neutral stimulus, by pairing with a natural stimulus, acquires all the characteristics of natural stimulus.” In this experiment of classical conditioning several important principles are associated with it. Some of them are very much important.

- ❖ Intensity of Stimulus: there is positive correlation between intensity of stimulus and magnitude of response. If the stimulus is more intense then more rapidly the conditioning will proceed.
- ❖ Extinction: if the conditioned stimulus is presented alone number of times then conditioned response will disappear.
- ❖ Spontaneous Recovery: After extinction the behaviour often reappears but reduced intensity.
- ❖ Stimulus Generalization: Generalization is a process where conditioned response to a stimulus is generalized to similar category of stimuli.
- ❖ Stimulus Discrimination: it is opposite of stimulus generalization which states that the learner learns to react differently to different stimuli.

Therefore, it can be concluded that though classical conditioning has no direct classroom implications but teachers can use this theory in regular teaching learning situation differently. Teacher can create an atmosphere with positive reinforcement which helps students in easy development of proper habit and positive attitude for different aspects of life. Conditioning was accepted as theoretical framework and practical technique of solving a variety of applied problems. The most important contribution is the language of learning and conditioning, e.g.- teaching of alphabets to small children. Besides these, this theory is also helpful in deconditioning emotional disturbances by applying different psycho therapy.

1.6.2.2 Operant Conditioning:

History of operant conditioning begins with Prof. B.F. Skinner 1904 in Harvard University. He is known for his researches collecting facts and

description of purely empirical relations. He is specifically interested in controlling those responses that seem to occur with no direct stimulation such responses are emitted rather than elicited by obvious environmental stimulation. Skinner critically studies the Thorndike's view of laws of learning. He concluded that behaviour is shaped and maintained by its consequences. It is operated by the organism. So, this type of behaviour is known as operant behaviour.

B.F. Skinner coined the term 'Operant Conditioning', where "Operant" implies that behaviour operates upon the environment to generate its own consequences. An Operant is a set of acts which conditions an organism in doing something. He was of the view that in practical situation in life we cannot always wait for things to happen in the environment. Individual may often manipulate the things in the environment with his own initiatives. Operant conditioning is also known as instrumental conditioning. It implies that learning occurs through reward and punishments given for a particular behaviour.

STOP TO CONSIDER :

- Reinforcement is one of the important aspect of conditioning theory.
- Reward and punishment , programmed learning all are associated with conditioning theory.

Skinner's pigeon experiment:

Skinner experimented with a pigeon and shaped its behaviour. He taught the pigeon to walk in the figure of eight. He watched the activity of the pigeon and gave a small amount grain for simply turning in the right direction. In the earlier stages the pigeon got his reward for simply turning its head in the right direction. He was rewarded again for taking a step in the right direction and again for marking the correct turn. Finally, it learned to move in a complete figure of eight.

In operant conditioning some important steps are followed which are as -

- It starts with the responses as they occur naturally and not at random.
- If they do not occur naturally, efforts should be made for shaping them into exercise.

Shaping means an organism is conditioned to performed difficult activities through rewards at the right occasion in the process of conditioning.

- Once a desirable response occurs it again reinforced through suitable reward.
- In due course the desirable responses get conditioned by constantly reinforcing it.

Thus, reinforcement is a key element in Skinner's S-R theory. A reinforce is anything that strengthens the desired response.

According to this theory, learning and environment should be properly planned for learner. We should plan for a systematic manner of conditioning for the learning of child. Reward will play the role of motivator whereas it suggests not to use punishment. We should analyze the problems of child and avoid inappropriateness. Therefore, this theory has contributed to the proper growth and development of programmed learning and the use of teaching mechanisms.

CHECK YOUR PROGRESS-3

8. Who advocated theory of classical conditioning?
9. Which are the four elements of conditioning process?
10. Cite some applications of classical conditioning to teaching-learning process.
11. What is operant conditioning?

1.6.3 Gestalt or Insightful Theory of Learning and Its Educational Implication:

Learning by insight is the contribution of German Psychologists who were studying the nature of perception. The views propagated by behaviourists in the form of an association faced great difficulty in explaining the learning process or behaviour involving higher cognitive ability. Dissatisfied with the approaches of behaviourists, the cognitive psychologists tried to see learning as a more deliberate and conscious effort rather than the formation of habits. Cognitive psychologists say that in a learning process the learner does not receive responses but definitely interacts what he receives. The new explanation of behaviour developed by three German Psychologists

namely Wolf Gang Kohler, Kurt Koffka, William Werthimer is known as Gestalt psychology.

Gestalt is a German term which means “configuration” or “organized whole”. According to Gestaltists learning cannot be understood by the study of its constituents but by the study of it as a totality. Gestalt is a protest against associationism with its analytical method. Here, mental facts are to be studied as concrete wholes; it holds that gestalts or organized wholes have qualities not belonging to parts and the parts derive their qualities from the wholes.

Gestalts believed that it is primarily concerned with the nature of perception. According to it an individual perceives a thing as a whole while behaviourists define perception as to make with taking of a photograph. They believed that sensation comes prior to meaning and consider these two as separate. But Gestalt psychologists don't separate the sensation of an object from its meaning. They are of the opinion that unless a person sees some meaning in an object he will pay little attention to it. Moreover, Gestaltists said perception always involves a problem of organization. They tried to interpret learning as purposive, exploratory and creative enterprise instead trial and error. Thus the main factor of Gestalt theory of learning is the development of insight.

Insightful theory of learning depends on the following factors:

- Experience: past experience of the learner helps in the insight of the problem.
- Intelligence: the general intelligence of the learner is important in grasping of the solution of the problem.
- Initial Effort: A repeated effort through trial and error opens the way of insight learning.
- Generalization: Learning experiences gained in one situation helps the learner to react insightful in similar situation.

Kohler and Koffka conducted many experiments on chimpanzees and brought out a book “Mentality of Apes” in 1925 in which they showed that learning was not the result of trial and error but of insight and ability to see relationship between various factors involved in a situation. Kohler conducted many experiments with his chimpanzee “Sultan” to describe the nature of “insight”. These experiments illustrate the theory of learning by insight.

Kohler conducted a series of experiments on Chimpanzees. The four classic experiments of this theory are—

1. **Experiment:** In the first experiment Kohler confined a Chimpanzee, named “Sultan” in a cage. There was a stick in the cage and outside the cage some bananas were put. In the first instance on seeing the bananas chimpanzee made jumping and showed restless and tried his best to reach the bananas, but he could not reach without the help of the stick. All of a sudden the chimpanzee received the stick and established relationship between stick and bananas. He got the bananas with the help of the stick.
2. **Experiment:** In the second experiment two stick were used which could be fitted in each other with some mechanisms. The chimpanzee could only get the bananas with the help of both the stick fitted in each other. First he tried to get the bananas by one stick but failed. All of a sudden he succeeded in fitting the both stick and could get the bananas.
3. **Experiment:** In this experiment the experimental condition was slightly changed. The bananas were hanged from the ceiling of the cage and a box was put to get the bananas. At first, the chimpanzee attempts to get the bananas without the box but could not reach them. He suddenly established relationship between box and the bananas. He climbed on the box and got the bananas. He climbed on the box and gets the bananas.
4. **Experiment:** Slight change was also introduced in this method. Two boxes were kept instead of one. The Chimpanzee could only get the bananas with the help both boxes. First he used single box to get the bananas but failed. After sometime he put one box on another and climbed on it and got the bananas.

These experiments demonstrate the rule of intelligence and cognitive abilities in higher learning such as problem solving. On the basis of their experimental studies, certain laws are developed by them which are mentioned below:

- **Figure-Ground:** Everything we perceive stands against a background. There is a close relationship between figure and ground. So, we always try to see the situation on the basis of a background and try to find out cause.

- Principle of Pragnanz: This principle states that our perceptual patterns always tend to be simple, regular and complete with no loose ends. The gaps are closed by perceiver.
- Law of Transposition: This principle states that Gestalts are isomorphic to stimulus pattern so they may undergo extensive changes without losing their identity.
- Law of Similarity: It suggests that similar words, numbers, and objects tend to associate in a group and easy to recall than dissimilar.
- Law of Proximity: It states that objects which are close in space and time tend to form a gestalt.

Educational implications of Gestalt theory:

- 1) Subject matter should be presented as a whole to facilitate insightful learning.
- 2) Teacher should try to motivate student by giving opportunities for using his mental abilities.
- 3) Attempts should be made to encourage thinking, reasoning, and understanding instead of emphasizing mechanical memorization of facts.
- 4) Insightful theory requires organization of perceptual learning material in form of a gestalt. The significant contribution of this theory is the organization of curriculum, scheme of studies, work plan and procedure of planning the scheme of learning.

CHECK YOUR PROGRESS-4

12. From which language the word “Gestalt” came from?
13. Write the names of group of psychologists who advocated insightful theory of learning.
14. What are different laws associated with gestalt theory of learning.

1.6.4 Field Theory and Its Educational Implication:

Kurt Lewin, like Pavlov, Skinner, Gestaltian Psychologists conducted experiments on the study of behaviour of children. It is, however, different from this respect that it gives more importance to behaviour in place of experience and makes use of motivations. He utilized an elaborate experimental set up with a view to control child’s total environment during

the course of the investigation getting detailed information. He emphasized the study of behaviour as a function of total physical and social situation.

Learning is behaviour, locomotion from one region of life space to another when a person moves from one region to another. Learning and insight can always be viewed as a change in the cognitive structure of the situation. It frequently includes differentiating and restructuring in the sense of separating certain regions which have been connected and connecting regions which have been separated.

Perception is the main issue in Lewin's theory of learning. He has classified learning into the following four categories——

- a) Learning as a change in cognitive structure.
- b) Learning is a change in motivation, i.e., in valences and values.
- c) Learning is acquisition of skills.
- d) Learning is a change in group belonging.

According to Lewin, level of aspiration is an important factor in the learning process. Level of aspiration depends on the potentialities of the individual and on the influences of the group to which he belongs. It has been further advocated by him that too high or low level of aspiration discourages learning. Lewin's theory is also called as field theory because 'field' means total psychological world in which a person lives at a certain time. It includes matters and events of past, present and future, concrete and abstract, actual and imaginary—all interpreted as simultaneous aspects of a situation.

In this way, we find that Lewin considers the psychological and traditional Gestalt learning as a point of that general problem which is about "how we experience the world as we experience it." Hence, learning takes place by bringing changes in the experiences or structure of life space.

Classroom implications:

The classroom implications include the importance of seeing the total situation at the beginning. In the teaching of a subject the question that will be answered during the study of the subject should be raised. The teacher should preview the activities involved and the problem to be encountered. Moreover, looking to the classroom from the field theorist's point of view, the pupil, the teacher, the school and the peer group are all parts of the total situation. Thus, it can be said that learning is characterized

by changed perception, improved reactions, differentiation of stimuli and response, integration of stimuli and response and achievement of understanding of insight. Factors which condition learning are the state of the organism, the appropriateness of stimulation and the existence of goals.

STOP TO CONSIDER :

- Gestalt is a protest against associationism with its analytical method.
- Gestalts believed that knowledge is primarily concerned with the nature of perception.
- According to Lewin, level of aspiration is an important factor in the learning process which depends on the potentialities of the individual and on the influences of the group to which he belongs.
- Constructivism theory make teaching learning process more active, lively and provide scope for new innovations among stuent.

1.6.5 Constructivism and Its Educational Implication:

Constructivism refers to theories of knowledge and learning. In constructing knowledge, the knowledge is viewed as made rather than discovered. The central premise of constructivism is that a learner is believed to construct, through reflection, a personal understanding of relevant structures of meaning derived from his or her action in the world. So, constructivism is a theory of knowledge that argues that humans generate knowledge and meaning from an interaction between their experiences and their ideas.

Constructivist approach was backed by the earlier work of influential theorists such as Jean Piaget and Jerome Bruner. Though there are different versions of constructivism, all versions are recommended a leaner centered approach whereby the teacher becomes a cognitive guide of learner's learning and not knowledge transmitter. The constructivist view of learning points us towards a number of teaching practices. It usually means encouraging students to use active techniques to enhance their knowledge base then reflect on new additions and the overall effect. So, it is important that the teacher makes sure that he understands the already firm and existing conceptions of the students and guides their activity to address and build them.

An important aspect of constructivism is the need for social interaction. The constructivist process works by social interaction and students have the opportunity to compare and share their ideas with others. Therefore, according to constructivism, knowledge is not acquired; it is constructed in the minds of learners based on previous experience/knowledge. As we have individual differences not only among individual's but also belongs to different society, so each individual forms different mental construction based on their own previous experiences. According to John Dewey (1938), not all experiences are equally educational. Everything depends on quality of the experience. So, we control the quality of learning through our choice of activities and our determination of structure. Therefore, in constructivism the learning circle is completed of 5E's-explain, extend, engage, explore and evaluation.

Jacqueline Grennon Brooks and Martin G. Brooks² offer five key principles of constructivist learning theory that may be applied in curriculum planning and teaching at all levels of learning. This are-

- Pose problems of emerging relevance to students.
- Structure learning around primary concepts.
- Seek and value students' point of view.
- Adapt instruction to address student suppositions.
- Assess student learning in the context of teaching.

Some of the important characteristics of constructivism are -

- According to constructivism, knowledge is constructed from experience.
- Learning is an active process where knowledge is actively constructed by the learner and teachers play the role of facilitator and guide.
- Knowledge is on the basis of personal interpretation of the world as the learner constructs their knowledge through their interaction with physical world and in collaboration with social, cultural and linguistic environment.
- Knowledge is represented in the brain as conceptual structures which emphasize problem solving and understanding on the basis of learning.

- This theory advocates scientific tasks, experience, and assessment in teaching learning process.

Educational Implications:

Constructivism theory makes the teaching learning process as learner centered where students are regarded as active participant and they are encouraged and guided by teacher to construct their knowledge on the basis of their abilities, qualities, interests and prior experiences. Some important implications of this theory are worth mentioning:

- ❖ Constructivism promotes social and communication skills by creating a classroom environment that emphasizes collaboration and exchange of ideas by sharing group projects.
- ❖ This theory provides modern innovative tools such as problem solving and inquiry based learning activities with which students formulate and test their ideas, draw inferences and strengthen their knowledge.
- ❖ Constructivism is a process in which students are help to develop their own goals and assessment, create new understandings and control learning through learning by doing principle which help teacher to pose problems that are or will be relevant to the students.

CHECK YOUR PROGRESS-5

15. Mention some of important contribution of Kurt Lewin's field theory.
16. What is constructivism?
17. What are the implications of constructivism in the field of education?

Let Us Sum Up:

- Learning is a lifelong continuous process which refers any change when they occur as a result of experience. It is a process which leads to certain modification in behaviour through experience and training so that individual can easily adjust in new situation. So, we can say that learning is acquiring new knowledge, behaviour, skills, values, understanding and may involve synthesizing different types and information.

- Maturation is a natural process of physical development on the other hand learning is a process which takes place as a result of stimuli from without. So, learning can only take place if the stage for that type of learning has been achieved through the process of maturation.
- For proper explanation about learning different psychologists have developed different theories of learning. These theories may be broadly classified under two major heads:
 - S-R theories or behaviourist theories and Cognitive theories.
- Connectionism is one of the most simple theory of learning which was propagated by American Psychologists Edward Lee Thorndike. According to him, learning is the formation of bond between stimulus and response which depends on a number of variables which operate the environment and the organism. On the basis of his experiment he formulated three major laws of learning and supplementary principles.
- Conditioning means modification of natural stimulus. Natural stimulus results natural response but according to condition response natural stimulus is substituted by an artificial stimulus and by this way new connection between artificial stimulus and natural response is created. Under conditioning theory Classical conditioning was developed by Russian Psychologist Ivan Pavlov. According to Pavlov, Classical Conditioning is a process a neutral stimulus acquires all characteristics of natural stimulus. When both the artificial and natural stimulus are brought together for several times the organism becomes conditioned to respond to this situation. As a result, a natural stimulus can be substituted by an artificial stimulus is able to evoke this situation.
- Operant conditioning is another approach to the study of associative learning which was developed by B.F. Skinner. It refers to increasing or decreasing the probability of response or behaviour in a particular stimulus environment by following the response with reinforcement or a punishment. He called his procedure operant conditioning which can be defined as any learning which is based on response contingent reinforcement and does not involve choice among experimentally defined alternatives.

- Gestalt psychology is a protest against associationism with its analytical method. Here, mental facts are to be studied as concrete wholes. It holds that gestalts or organized wholes have qualities not belonging to parts and the parts derive their qualities from the wholes. Learning by insight means sudden grasping of the solution, a flash of understanding, without any process of trial and error.
- Lewin's theory regarded learning as a relativistic process by which a learner develops new insight or changes old ones. According to the theory, learning is not a mechanistic process of connecting stimuli and responses within a biological organism.
- Constructivist learning envisages learning in the context of real life situations and problems. It suggests a curriculum that integrates learning in workplace. Classroom activities are designed in such a way that guide students to work collaboratively, decide sequence and pace of work and actively engage in problem solving and critical thinking.

Key Terms:

Behaviour: Behaviour is the outer expression of inner feeling as well as reactions showed by individual against any stimuli from environment.

Behaviourist Theory: This theory implies learning is a process of a change in behaviour of the organism due to the acquisition, reinforcement and application of associations between environmental stimuli and observable responses.

Cognitive Theory: This theory explains learning as the acquisition of knowledge; learner is information processors who absorbs information and undertake cognitive operations on it.

Reinforcement: It is the procedure for controlling behaviour, not a hypothetical device that produces stimulus response connection.

Level of Aspiration: It is one of the important factors of learning process according to Lewin. He explained the learning process on the basis of individual's life span which includes each and every objects of environment as well as all internal aspects of individual.

Constructivism: It implies people construct their own understanding and knowledge of the world by experiencing things and reflecting on those experiences through observation and scientific study of how people learn.

Answers to ‘Check Your Progress’

1. According to Crow and Crow, “Learning is the acquisition of habits, knowledge and attitude. It involves new ways of doing things and it operates in an individual’s attempts to overcome obstacles or to readjust to new situations. It represents progressive change in behaviour. It enables him to satisfy interest to attain goals.”
2. Two important nature of learning are-
 - a) Learning is adjustment
 - b) Learning is development.
3. Two important factors of learning are:
 - a) Physical and mental health of the learner.
 - b) Socio-economic and cultural background of the learner
 - c) Previous knowledge of the learner.
4. There are mainly two types of theories of learning – S-R Theories and Cognitive field theories.
5. E. L. Thorndike is the father of connectionism theory.
6. Laws of learning was propounded by E. L. Thorndike
7. There are some supplementary principles propagated by Throndike in the theory of connectionism. These are—principle of multiple response, principle of mental set, principle of partial activity, principle of analogy or assimilation, principle of associative shifting.
8. Russian Psychologists Ivan Pavlov advocated theory of classical conditioning.
9. The four important elements of conditioning process are natural stimulus, natural response, artificial stimulus and artificial response
10. Classical conditioning theory helps in development of habit formation and language development of child.

11. Operant conditioning implies that learning occurs through reward and punishments given for a particular behaviour.
12. The Gestalt came from German language.
13. The group of German Psychologists who advocated Insightful theory of learning are Wolf Gang Kohler, Kurt Koffka and Max Werthimer.
14. The important laws associated with Gestalt theory of learning are- Figure-Ground, Principle of Pragnanz, Law of Transposition, Law of Similarity, Law of Proximity.
15. Regarding classroom implications of Kurt Lewin's field theory it can be said that in the teaching of a subject the question that will be answered during the study of the subject should be raised. The teacher should preview the activities involved and the problem to be encountered. Moreover, it can be said that learning is characterized by changed perception, improved reactions, differentiation of stimuli and response, integration of stimuli and response and achievement of understanding of insight.
16. Constructivism refers to theories of knowledge and learning. The central premise of constructivism is that a learner is believed to construct, through reflection, a personal understanding of relevant structures of meaning derived from his or her action in the world.
17. Constructivism theory makes the teaching learning process as learner centered where students are regarded as active participant and they are encouraged and guided by teacher to construct their knowledge on the basis of their abilities, qualities, interests and prior experiences.

Questions and Exercise:

Short –Answer Questions:

1. Define learning with suitable definition.
2. What are the main characteristics of learning? Explain any five.
3. Which theory suggested trial and error method of learning?
4. What are different laws of learning suggested by connectionism theory?
5. Explain Pavlov's Classical Conditioning theory of learning by giving famous experiment on dog.

6. Explain few factors on which learning by insight depends.
7. Write briefly about the main concept of Kurt Lewin's field theory.
8. Mention some of the important characteristics of constructivism as a theory of learning.

Long Answer Questions:

1. Define learning. Describe about the importance of learning for teachers.
2. Describe about different theories of learning and explain one of them with educational implications.
3. Summarize the contribution of Kurt Lewin's field theory in the field of education.
4. Describe about the theory of constructivism by giving practical examples of it in classroom situation.

FURTHER READING:

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Unit 2

Variables in Human Learning

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2.0 Introduction

Every individual wants to develop. The key to his/her development is learning. Learning helps him or her to performing desirable acts and move towards development. Learning is a requisite for all activities especially the solving of problems. It is a continuous and life long process. It is not confined to the class-room alone but is an important aspect of an individual's survival in the environment. All educational institutions, parents and teachers aim to facilitate learning and development of their children by arranging appropriate conditions for them. Successful learning leads to successful development.

2.1 Objectives

After going through this unit, you will be able to:

- *understand* the meaning of maturation and learning
- *discuss* the meaning of motivation and types of motivation
- *explain* various theories of motivation including the theory of Achievement motivation and Maslow's need theory
- *identify* the role of a teacher in motivating students
- *understand* the concept of transfer of learning and its types
- *explain* theories of transfer of learning i.e theory of mental discipline, theory of identical elements and theory of generalization.
- *identify* the role of the teacher in effective transfer of learning

So far as the previous chapter is concerned, you have focused on the meaning and nature of learning, and theories of learning along with their educational implications. In this chapter, you will come to know different variables in human learning. Maturation and Motivation are important variables in human learning. So, let us now understand how maturation and motivation are part of the learning process.

2.2 Maturation and Learning

Maturation refers to the growth and development of an individual in terms of body, mind, instinct and learning ability. It is a natural process and does not require special effort on the part of the individual or the parent. Most traits that are part of maturation are inherited and are manifested with time. Maturation plays an important role in bringing about change in behavior. For example, when the child walks or talks, it is an indication that maturation is at work. The swimming of tadpoles or the flying of birds also demonstrates the effect of maturation on behavior.

Whatever training you may provide to an infant of 6 months he or she will not speak the language. The infant will speak only when his vocal organs mature. The child first creeps, then crawls, and then walks. But the first behavior – creeping – and occurs only when the infant is mature and ready to do so. All these examples make it clear that change in behavior also occur due to maturation. Maturation in this sense means development of anatomical and physiological aspects of the body.

Certain changes in behavior occur due to both maturation and learning. For example, a child cannot walk until his legs are strong enough to support the weight of his body and until the development of proper neural structure takes place. But children do not all walk in the same manner. The manner of walking is learned. Similarly, a child cannot speak until the vocal organs develop. But children do not all speak the same language. Those who speak the same language speak in different ways. Speech is also learned behavior.

Maturation helps in the learning process. We cannot learn anything without the body playing its part. The things we learn, the speed with which we learn them, and our ability to retain them, all depends on the interaction between our maturation process and the learning experiences. Therefore, maturation and learning are closely related to each other.

STOP TO CONSIDER :

Maturation refers to the growth and development of an individual in terms of body, mind, instinct and learning ability. It is a natural process and does not require special effort on the part of the individual or the parent. Most traits that are part of maturation are inherited and are manifested with time. Maturation plays an important role in bringing out change in behavior.

2.3 Motivation and Learning

Every action performed by the individual is purpose oriented. This purpose motivates action. If someone who is properly motivated initiates action then that action gets desirable results. Without motivation he or she is likely to fail. Learning in children is closely correlated with their motivation. If children are properly motivated then their quantum of learning is increased. Therefore it is necessary to understand the meaning, types and theories of motivation and the other associated aspects. This chapter tells you about all of these things.

Meaning of Motivation

The term motive is derived from the Latin word '*Motum*' means to move, to set in motion or to prompt to action. A motive stimulates a person to behave or act in a certain way. Motivation represents the causes for an

individual's actions, desires, and needs. A motive is what prompts a person to act in a certain way or at least develop an inclination for specific behavior:- for example, when someone eats food to satisfy hunger, or when a student does his/ her work in school because he/she wants a good grade. Motivation can also be defined as one's direction to behaviour or what causes a person to want to repeat a behaviour and vice versa. Motivation is the process that initiates, guides, and maintains goal-oriented behaviours. Motivation is what causes us to act, whether it is getting a glass of water to reduce thirst or reading a book to gain knowledge. It involves the biological, emotional, social, and cognitive forces that activate behaviour. In everyday usage, the term motivation is frequently used to describe why a person does something. Motivation is a power that energizes, regulates and controls the activities of an individual. Motivation is the psychological stimulus that directs people to act in a certain way to achieve their goals.

STOP TO CONSIDER :

The term motive is derived from the Latin word 'movere' means to move, to set in motion or to prompt to action. A motive stimulates a man to behave or act in certain way. Motivation represents the causes for an individual's actions, desires, and needs. A motive is what prompts a person to act in a certain way or at least develop an inclination for specific behaviour.

2.3.1 Types of Motivation

Motivation is of the following two types:-

Intrinsic Motivation: Intrinsic motivation is the self-desire aroused in the subject itself. It is spontaneous and automatic interest expressed by an individual in a certain task. It is driven by an interest or enjoyment in the task itself, and exists within the individual rather than relying on external pressures or a desire for reward. Intrinsic motivation is a natural motivational tendency and is a vital element in case of some one's cognitive, social, and physical development. Students who are intrinsically motivated are more likely to engage in a task willingly to improve their skills, which will increase their capabilities. Long lasting and long sustaining intrinsic motivation gives better results.

Extrinsic Motivation: Extrinsic motivation is the opposite of intrinsic motivation. Extrinsic motivation comes from influences outside of the individual. Usually extrinsic motivation is used to attain outcomes that a person wouldn't get from intrinsic motivation. Common extrinsic motivations are rewards (for example money or grade) for showing the desired behavior, and the threat of punishment for misbehavior. Competition is an extrinsic motivator because it encourages the performer to win and to beat others, not simply to enjoy the intrinsic rewards of the activity. A cheering crowd and the desire to win a trophy are also extrinsic incentives.

STOP TO CONSIDER :

Motivation is of the following two types:

- (i) Intrinsic Motivation and
- (ii) Extrinsic Motivation.

2.3.2 THEORIES OF MOTIVATION

The following theories explain motivation and all its distinct varieties. We may find that these theories supplement one another and point towards the same truth.

1. **Pawn Theory:** This is based on the transcendental approach to the problems of life. According to this theory, we are 'pawn', puppets, instruments in the hands of God. Both classical and Freudian psychologists and Behaviouristic theories of learning derive their strength from this. This pawn theory passes on the responsibility to some 'mysterious power' which is something intangible.
2. **Energy Theory:** If there is no energy, there is no motivation. According to Freud the source of physical energy is Eros and according to Jung, it is Libido. As a matter of fact this theory offers no explanation.
3. **Instinct Theory:** McDougall is said to be the originator of this theory. According to him, "The human mind has certain innate or inherited tendencies which are the essential springs or motive powers of all thought and action, whether individual or collective and are the bases from which the character and will of individuals and of nations are gradually developed under the guidance of the intellectual

faculties.” McDougall put forward a list of 41 instincts and attached 14 emotions with them. This theory was very popular in Britain with Nunn, Burt, Ross, Hughes and Valentine etc. However, the American psychologists do not find any weight in this theory.

4. **Stimulation Theory:** All inner and outer stimuli that bear upon a person at any one time constitute a person’s psychological field and determine behaviour jointly through inter-action.
5. **Need Theory:** There are two sets of needs: (i) primary or biological, and (ii) secondary or psychological. The more intense the need, the more the motivation.
6. **Behaviour or Learning Theory:** This is more elaborate than the need theory. Hull and his associates are the supporters of this theory. The theory has three main tenets: (a) All motivated behavior is based on needs and desires; (b) All learning involves reward in the sense that only those responses that reduce need or drive are stamped in; and (c) need may be biological or psychological, primary or secondary.
7. **Social Theory:** According to this theory, causes of social behaviour are to be found in the social environment. There are two streams of this theory:
 - i. **Cultural Pattern:** According to this view, an individual is cast in the mould of the culture to which he belongs. The different cultures would, therefore, produce different types of personalities.
 - ii. **The Field Theory:** According to this theory behaviour is caused by the interaction between a person and his environment.
8. **Depth Theory:** Freud is the main protagonist of this theory. The spring of action is the unconscious which is dark, ruthless, very powerful and illogical. Special exploratory techniques are needed to dig out the unconscious. Unconscious motives influence our conscious thought and conduct.
9. **Physiological Theory:** This theory holds that the secrets of the mind are locked within the cells of the nervous system.

CHECK YOUR PROGRESS:

1. The term motivation is originated from a Latin word _____.
2. Two types of motivation are _____ and _____.

2.3.3 Achievement Motivation

Achievement motivation is a new concept in the world of motivation. It is personal in nature. Psychologists consider that all human behavior is intended to reduce tension and reach a state of physiological and psychological equilibrium. But, McClelland states that rather than being essentially tension states, motives are also drives towards action based on expectation.

Meaning and Definitions of Achievement Motivation:

Achievement motivation is the desire to do better, to achieve unique accomplishment, to complete with standard of excellence, and to involve oneself with long term achievement goals. However, different psychologists have defined achievement motivation as follows:

According to **McClelland and Atkinson**, “Achievement motivation may be associated with a variety of goals, but in general the behavior adopted will involve activity which is directed towards the attainment of some standard of excellence.”

Atkinson and Feather (1966) state: “The achievement motivation motive is concerned as a latest disposition which is manifested in overt striving only when the individual perceives performance as instrumental as a sense of personal accomplishment.”

In general achievement motivation is expectancy of finding satisfaction in mastery of difficult and challenging performances but specifically in the field of education it stands for the pursuit of excellence.

The basis of achievement motivation is the desire to achieve. A person, who has engaged in a task with an achievement motive, is said to work in the spirit of achievement motivation. Achievement motivation is very essential for anyone to improve performance at school.

Achievement motivation is a disposition to approach success or a capacity for taking pride in accomplishment. If a person has a greater degree of achievement motivation, he will have higher level of aspiration, which will lead to greater achievement.

STOP TO CONSIDER :

Achievement motivation is the desire to do better, to achieve unique accomplishment, to complete with standard of excellence, and to involve oneself with long term achievement goals.

2.3.4 Maslow's Self-Actualization Theory

Abraham Maslow (1954) has developed a hierarchical order of needs from psychological needs to self actualization needs. Maslow classified the needs starting from basic survival or lower order needs to higher order needs. These are:—

- i. Psychological needs
- ii. Safety needs
- iii. Love and Belongingness
- iv. Esteem needs
- v. Achievement needs
- vi. Aesthetic needs
- vii. Self-actualization needs.

Maslow says that these needs can be arranged in a hierarchy. A man is never satisfied with all his needs. If one need is satisfied, another need would arise and this is a human tendency.



Fig- 2.1: Maslow's Hierarchy of Needs

Maintenance Needs: The first four needs such as psychological needs, safety needs, love and belongingness needs and esteem needs are considered to be maintenance needs or motives. These needs are strong and recurring. They become very strong when they are denied. These needs are granted or denied by external factors. So, the teachers should see that these needs are satisfied among students when they are educated.

Growth Needs: The other three needs such as achievement needs, aesthetic needs and self actualization needs are considered to be growth needs and they spring from within. They are mild and continuing. They grow stronger when they are fulfilled. So, the teachers have to make students realize these needs for their own good.

In the hierarchy of needs, if the first need is fulfilled, the next need becomes dominant and thus it reaches the self-actualization need, which is the highest level of functioning.

- 1. Psychological needs:** These needs are the most potent of all and these are basic needs. Satisfaction of these needs is very much essential even for the existence of an individual or for physical well-being. Need for food, water, oxygen, rest, sleep and elimination of waste products from the body is fundamental for survival. All of our efforts are directed towards the satisfaction of these fundamental needs. In the course of an education programme, teachers should ensure that these needs of students are fulfilled.
- 2. Safety needs:** Safety needs are about order and security. These needs become dominant when physiological needs are gratified. Every organism wants safety and security. For example, when the child goes to school for the first time, it weeps and cries with the idea of losing safety and security.
- 3. Love or Belongingness needs:** These needs emphasize the gregarious nature of man. Everybody has a desire to love and to be loved that leads to maintaining pleasant and happy relations with others. Further, everybody wants to identify with a group, with family, with friends at school, with his village or town, with his country etc. These healthy relations provide strong motivating force to the individuals for learning or any other activities. So, the teachers should be very kind and affectionate towards all students.

4. **Esteem needs:** Esteem needs mean prestige, social status, reputation, self-esteem, self-respect and self-regard. Every individual wants to be thought highly of. One feels hurt when his self respect is injured. The teacher should not insult the students in the classroom. Each one in respective given group wants to gain appreciation, esteem and recognition from others. So, the teacher should recognize the work of their students and appreciate them, whenever necessary.
5. **Achievement needs:** Some people seek achievement in athletic activities, while others seek it in intellectual fields or even in the spiritual world. Every human being manifests the need for achievement. The achievement of an individual depends upon his talents and the environment. It is the duty of the teacher to provide knowledge and a favorable environment for high achievement.
6. **Aesthetic needs:** Aesthetic needs mean appreciation of beauty and ordering of things or arrangement of things appropriately. Everyone derives pleasure in appreciation of beauty, music and nature. The poets are the best examples of this.
7. **Self- actualization needs:** Self-actualization mean maximum development of an individual in whatever he is capable of. In other words, it means to fulfill one's individual nature in all its aspects. Self-actualization assumes freedom from the restrains of society and the desire to attain perfection in all aspects of life.

Self-actualization is the highest need. Therefore, this need is also called Maslow's Self-actualization theory. All these needs should be satisfied in the learner for their effective learning. It is the responsibility of the teacher to check with the students whether all these needs are satisfied.

STOP TO CONSIDER :

Abraham Maslow (1954) has developed a hierarchical order of needs from psychological needs to self actualization needs. Maslow classified the needs to start from basic survival or lower order needs to higher order needs. They are: Psychological needs, Safety needs, Love and Belongingness, Esteem needs, Achievement needs, Aesthetic needs, and Self-actualization needs.

CHECK YOUR PROGRESS:

3. The motivation, which is directed towards the attainment of excellence, is called _____ motivation.
4. Self Actualization Theory was developed by_____.

2.3.5 Role of Teacher in Motivating Students

Teacher plays an important role in motivation. Without motivation learning cannot take place. Therefore, a teacher has to adopt different types of techniques to motivate students in their learning. Let us discuss some of the techniques to be adopted by the teacher to motivate students.

Presenting well defined learning objectives: It is known that action is objective based. So learning being a great action has its own objectives. A teacher should clearly define the learning objectives for his learners so that the learners may be motivated properly.

Presenting curriculum in well organized and systematic way: Learning is facilitated with the curriculum. Children find interest in learning with simple and easy curriculum and become disinterested in different curriculum. Therefore, a teacher will have to organize and present the curriculum in a systematic and well organized manner in order to motivate learners.

Teaching with appropriate methods in keeping with the standard of the children: Method of teaching helps in clarifying doubts and making the meaning understandable for learners. Therefore a teacher should adopt and apply interesting and suitable methods of teaching keeping in view the level of students with respect to their intelligence, age, interest and need so that the students will be motivated more in their learning.

Teaching supplemented with adequate teaching aids: Teaching dominated by the oral and theoretical concepts is likely to kill the interest of the learner and result in poor motivation for learning. Therefore a teacher should use different types of suitable and relevant teaching aids that will result in greater motivation for learning.

Arranging re-creational facilities for children during learning: Compelling students in to over-learning with zero re-creational activities result boring and distracting them. It also leads to poorer motivation. Therefore, a teacher should allow students to enjoy some recreational

activities during the time of their learning, especially when they are bored and tired so that so that they will be freshly motivated in their learning.

Avoiding a masterly manner and instead being friendly and acting as a counselor while teaching: A teacher should not act as a master who only directs and teaches his students but should be receptive to their interests and needs. He should be a friend, philosopher and guide who helps and counsels them, understand their needs and solves their problems inside the class room and out of it.

Providing adequate feedback to the learners: Learners often face difficulties in their learning. It necessary for the teacher to provide adequate feedback for learners to proceed ahead. Providing feedback in due time and in proper manner will motivate the learner to learn more and learn better.

Avoiding punishment and instead providing reinforcement to the learner: A teacher should avoid inflicting rigorous punishment on students. Mild punishment may result in improvement in learning and rectification in the behavior but heavy punishment will yield negative results in learning and motivation.

Making teaching more interactive: Passive learning methods makes students lose interest and motivation. Sometimes unidirectional teaching makes the classroom monotonous and dull. Interactive teaching strategies involving students' and bi-communication and bidirectional teaching and learning will make the classroom live and active. It will make the students more motivated in their learning.

So far you have learnt about the role of Maturation and Motivation in the learning process. In the following unit you will understand the meaning, types and various theories of transfer of learning. Moreover, you will also comprehend the role of the teacher in the transfer of learning.

CHECK YOUR PROGRESS:

5. What are the Hierarchy of needs as stated by Maslow?

2.4 TRANSFER OF TRAINING/LEARNING

Learning is transferable. One kind of learning facilitates other kinds of learning. The influence of previous learning on present learning is said to be 'transfer of learning'. Transfer helps in optimizing learning. Transfer of learning is defined as the thinking, feeling, habit, knowledge and skill that are carried over from one learning task to another.

Definitions of Transfer of Learning:

The following are some of the definitions given by psychologists.

- **Sorenson (1948):** "Transfer refers to the knowledge, training and habits acquired in one situation to another situation."
- **Peterson, M. J. (1957):** "Transfer is generalization, for it is the extension of idea to a new field."
- **Bigge, B.L. (1964):** "Transfer of learning occurs when a person's learning in one situation influences his learning and performance in another situation."
- **Ellis, H.C. (1965):** "Experience or performance in one task influences performance in some subsequent task"
- **Crow, L.D. and Crow, A.C. (1973):** "The carry-over of habits of thinking, feeling or working, of knowledge or of skills, from one learning area to another."
- **Woolfolk, A.E. (1990):** "Transfer of learning is a phenomenon in which something that was previously learned facilitates (positive transfer) or hinders (negative transfer) current learning."

On the basis of the above definitions you can conclude that, the influence of previously learned information or task on new situations or tasks is known as transfer of learning.

2.4.1 TYPES OF TRANSFER OF LEARNING

Based on the influence of prior learning task on the new task, the following three types of transfer of learning occur:-

1. **Positive transfer:** A positive transfer takes place when the previous learning task facilitates the present learning task. For example, the knowledge of addition and subtraction in mathematics facilitates the learning of multiplication and division. Learning Urdu may help to learn Hindi. Learning pedalling of tricycles makes the pedalling of bicycles easier.

2. **Negative transfer:** Transfer is negative when learning in one situation hinders, interferes or weakens the learning in another situation. For example, having learned to drive on right-hand side in the USA people may find it difficult to drive in India where vehicles are to be driven on the left-hand side.
3. **Zero transfer:** When one learning situation does not influence the learning in another situation significantly, it is said to be zero transfer. For example, learning of mathematics has no effect on the learning of swimming.

2.4.2 Theories of Transfer of Learning

The various theories of transfer of learning explain how transfer takes place from one situation to another situation.

1. **Theory of mental discipline:** This is also known as formal discipline theory. This theory focuses on the mind, which is composed of several faculties such as memory, attention, imagination, reasoning and judgment. These faculties are strengthened through exercise or practice. Such properly strengthened faculties function automatically in all situations. For example, learning mathematics and grammar gives training to the mind, which will be helpful in learning other subjects.
2. **Theory of identical elements:** Thorndike is the author of this theory. According to this theory, transfer takes place from one situation to the other because there are a number of common identical elements between the practiced and to-be-practiced activity. If some elements present in the original situation are also present in the new, they facilitate transfer. Transfer takes place from one situation to another to the extent that there are elements that are identical or common to both.
3. **Theory of generalization:** This theory was put forth by Charles Judd in 1908. Judd's theory of generalization emphasizes that what is learned in one situation is transferred to another situation because while learning in the first situation the individual grasps the general principles. Those principles are then applied to new situations. According to Judd, transfer of learning can be facilitated by teaching the students general principles rather than specific solutions.

2.4.3 Role of Teacher in Transfer of Learning

So far we have concentrated on the various theories of transfer and their approaches to transfer. Now let us examine those factors which are applicable to the class room teaching- learning process and the role of the teacher in the process of transfer. The teacher can help students in the process of transfer to a great deal if he/she uses the following techniques in the course of teaching. The teacher must keep in mind that transfer is not automatic but requires effort on the part of the teacher and the learner.

- 1. Maximize the similarity between teaching and the ultimate testing situation:** This can be done in several ways. The teacher may provide identity of method and matter. The teacher must be precise and definite about which learning experiences are to be transferred to the life situation. The teacher can achieve this by setting goals in advance.
- 2. Provide adequate experience with the original task:** It has been established beyond doubt by experiments that extensive practice of the original task increases the likelihood of positive transfer to a subsequent task, whereas limited practice may yield no transfer. The teacher must provide thorough practice in the early stage of developing new skills and concepts. Although it is difficult to ascertain the amount of practice required for a particular task, a good rule is to practice as much as possible considering the constraints of time and different capabilities of students.
- 3. Provide a variety of examples:** The teacher should give several examples, specifically when teaching new concepts and skills. Examples strengthen the understanding of concepts and students are able to see the applicability to real life situations.
- 4. Identify important features of a task:** The teacher should help students to identify the tricky or most important aspects of a task. For example, when teaching the use of alphabets in creating short words, children confuse 'b' and 'd' due to their similar appearance. The teacher can use humour in the form of deliberate misuse of letters and the confusion it can cause to reinforce this concept.
- 5. Mastery of sequential tasks:** When the learning can be conceived as a hierarchy of sub-skills of differing difficulty, the teacher should

ensure that the student achieves mastery of the prerequisite skills before attempting the more difficult or higher order tasks. The teacher must apply this principle of transfer only where the arrangement of sub-skills is truly hierarchical. The sequence of learning should proceed from the inclusive tasks to the more specific aspects of the task. Transfer from generalized prior knowledge to a new task is facilitated if the learner's prior knowledge is well-organized. The teacher should take into account that a learning experience has multiple effects on how a student will function in a subsequent situation. In addition to the effects on the area of problem-solving, consider how the learning experience will affect the learner's motivational system, values, attitudes and self-esteem.

- 6. Use of discussion:** The teacher should invite questions from the students on different aspects of the problem to clarify the difficult areas. Opportunities should be provided for free discussion in the classroom for better understanding of the subject matter.

CHECK YOUR PROGRESS:

6. Define transfer of learning?
7. What are the different types of transfer of learning?
8. Who is the author of the theory of Identical Elements?

2.5 SUMMING UP

- Maturation refers to the growth and development of an individual in terms of body, mind, instinct and learning ability. It is a natural process and does not require special effort on the part of the individual or the parent. Most traits that are part of maturation are inherited and are manifested with time. Maturation plays an important role in bringing out change in behavior.
- The term motive is derived from the Latin word 'movere' means to move, to set in motion or to prompt to action. A motive stimulates a man to behave or act in a certain way. Motivation represents the causes for an individual's actions, desires, and needs.
- Motivation is of the following two types: (i) Intrinsic Motivation and (ii) Extrinsic Motivation.

- Achievement motivation is the desire to do better, to achieve unique accomplishment, to complete a task to a certain standard of excellence, and to involve oneself with long term achievement goals.
- Abraham Maslow (1954) has developed a hierarchical order of needs from psychological needs to self actualization needs. Maslow classified the needs to start from basic survival or lower order needs to higher order needs. They are: Psychological needs, Safety needs, Love and Belongingness, needs, Esteem needs, Achievement needs, Aesthetic needs, and Self-actualization needs.
- The teacher plays an important role in motivation. Without motivation learning cannot take place. Therefore, a teacher plays a great role in adopting different types of techniques to motivate students in their learning.

2.6 QUESTIONS AND EXERCISE

Short answer type:

1. Define Motivation.
2. Explain the types of motivation.
3. Define transfer of learning.
4. Discuss the theory of Identical Elements?

Long answer type:

1. “Learning cannot take place without maturation”- illustrate with example?
2. Cite and explain Maslow’s Hierarchy of needs?
3. What is meant by achievement motivation? How would it be developed?
4. Explain the role of teacher in the transfer of learning?

2.7 REFERENCES/SUGGESTED READINGS

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Unit III

Intelligence

Contents:

- 3.0 Introduction
- 3.1 Learning Objectives
- 3.2 Meaning of Intelligence
- 3.3 Definitions of Intelligence
- 3.4 Nature or Characteristics of Intelligence
- 3.5 Role of Heredity and Environment on Intelligence
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- 3.10 Let us Sum Up
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3.0 Introduction:

Human beings are different from other living creatures. Human beings can think according to their needs, can judge what is right and what is wrong by analysing a situation. They can also take decisions that are acceptable in the society. All these are not possible in case of other animals because of the absence of one factor - intelligence. So in this chapter we will try to know what intelligence is and its nature. This chapter also discusses the role of heredity and environment on intelligence, Piaget's theory of Intellectual development, and the concept of Multiple intelligence and Social and Emotional intelligence.

3.1 Learning Objectives:

After the discussion of this unit you will be able to-

- understand the meaning and nature of intelligence
- explain the role of heredity & environment on intelligence

- understand the Piagetian theory of intellectual development
- describe the concept of multiple intelligence and
- explain about social intelligence and emotional intelligence

3.2 Meaning of Intelligence:

The word intelligence is used very often in the life span of every human being. Intelligence plays a dominant role in all kinds of human activities. The success or failure of any task largely depends upon it. In the simplest sense, intelligence is termed as the ability to think, ability to do and the ability to adjust. It is the general mental ability with the help of which people perform all the tasks purposefully. Intelligence refers to the totality of behavioural experiences of an individual with rational thinking capacity. It is described as the ability to perceive or infer information, and to retain it in the form of knowledge to be applied towards adaptive behaviours within an environment or context.

The term “Intelligence” has been derived from the Latin root “*Intelligentia*” which means to comprehend or understanding of knowledge. In ancient India, a term “*Viveka*” was mostly used by the great Rishis and this “*Viveka*” is today known as Intelligence. It is the reasoning ability which helps to learn and understand things. In short, intelligence is the capacity of the mind to acquire knowledge, and the knowledge thus acquired can be applied in a particular context or environment as needed.

3.3 Definitions of Intelligence:

In the field of psychology, the word intelligence is used in a very comprehensive way. Different psychologists have defined it in a number of ways which are given below:

According to **Wells**, “Intelligence is the property of recombining our behaviour patterns so as to act better in a novel situation”.

Alfred **Binet** said, “Intelligence is what intelligence tests test”.

In the opinion of **William Stern**, “Intelligence is a general capacity of an individual consciously to adjust his thinking to new requirements. It is the general mental adaptability to new problems and conditions of life.”

Jean Piaget said, “Intelligence is the ability to adapt to one’s surroundings”.

Wagnon viewed, “Intelligence is the capacity to learn and adjust to relatively new and changing conditions”.

All the definitions mentioned above explain intelligence as the adjustment ability of an individual with his or her surroundings. Some psychologists want to explain intelligence as the ability to think, some say ability to learn and some others consider this concept as the ability to accomplish tasks. Therefore, a few definitions which describe intelligence as thinking or learning power or task accomplishing ability can be mentioned below:

Thorndike defined intelligence in the year 1914 as “the power of good responses from the point of view of truth or fact”

Buckingham, “Intelligence is the learning ability”.

Dearborn said, ‘It is the capacity to learn or profit by experience”

According to **Terman**, “An individual is intelligent in the proportion that he is able to carry on abstract thinking”

Woodworth and Marquis said “Intelligence means intellect put to use. It is the use of intellectual abilities for handling a situation or accomplishing any task.”

A comprehensive definition of intelligence given by David Wechsler is cited here. This definition covers all the areas of thinking capacity, activity performance capability along with adjustment ability of individual. According to **Wechsler**, “Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally and to deal effectively with his environment.”

Stoddard’s definition on intelligence is also very comprehensive. In the year 1943, he defined intelligence as “the ability to undertake activities that are difficult, complex and abstract and which are adaptive to a goal, and are done quickly and which have social value and which lead to the creation of something new and different.”

According to **Gates & Others**, Intelligence is a “composite or organization of abilities to learn, to grasp broad and subtle facts, especially abstract facts with alertness and accuracy to exercise mental control and to display flexibility and ingenuity in seeking the solution of problems”.

After the discussion of all these above cited definitions, it becomes clear that intelligence is a kind of energy of an individual in the form of

mental abilities. These abilities help an individual to adjust with new situations effectively. For example, 100 students take admission at the degree course in a college. At the beginning of the session, newly admitted students may face some problems related to course and adjustment (in a new situation). But gradually they will adjust with their classmates and teachers in the new academic environment and surely attain knowledge according to their own capacity. The capacity which help them to adjust in the college and to gain knowledge according to set goals, is called intelligence.

CHECK YOUR PROGRESS:

Q.1. The word intelligence has been derived from Latin root _____
(Fill in the blank)

Q.2. Give any one definition of intelligence

.....
.....
.....

3.4 Nature or Characteristics of Intelligence:

The meaning and definitions discussed above reveal the following facts about the nature of intelligence:

- Intelligence refers to the general mental abilities.
- Distribution of intelligence is not equal among all human beings. It differs from individual to individual.
- Intelligence follows the principle of normal distribution which states that the majority of the people are at the average category, a few are above average which means very bright and a few are below average which means very bright. (? Both can't be very bright. please find out from the author)
- Intelligence is not static in nature. It tends to vary in the same individual from age to age and from situation to situation.
- Intelligence is an abstract concept which grows with the increase of age.
- Intelligence is basically a function of our neurons. Thus its development or deterioration is closely related to our nervous system.

- Heredity and environmental factors influence a lot in the growth of intelligence in a person.
- Intelligence can be described as a sort of mental energy in the form of cognitive abilities.
- The existence or availability of intelligence within a person can be judged only in terms of the quality of his behaviour or performance.
- Intelligence is biological as well as social in nature.

STOP TO CONSIDER :

- Intelligence refers to the aggregate capacity of the total cognitive abilities of an individual with the help of which purposeful activity and rational thinking is done by him
- Intelligence is also described as the effective adjustment ability of a person to his new environment.

3.5 Role of Heredity and Environment on Intelligence:

Meaning of Heredity: The psycho-biological characteristics which we acquire from our parents at the time of birth are known as Heredity. It refers to all those psychological and biological qualities in children which are transmitted to them by parents through fertilized egg. The basic substances of heredity known as “Chromosomes” and “genes” determine these basic characteristics of individual and this is called heredity. In the words of R. S. Woodworth, “Heredity covers all the factors that are present in the individual when he begins life not at birth, but at the time of conception about nine months before birth.”

Meaning of Environment: Apart from heredity, everything else comes under the concept of environment. Environment means the surroundings that comprise all the natural as well as artificial components in the world which come in contact with the individual at different times. E. G. Boring and others say, “The environment is everything that affects the individual except his genes.”

Role of heredity and environment: It is a matter of long lasting controversy whether intelligence is determined by heredity or by environment. This controversy regarding the relative role of heredity and environment on intelligence has given rise to three approaches:

- (a) The first one is extreme genetic determinism approach, according to which intelligence differs in individuals due to genetic inheritance.
- (b) Secondly, extreme environmentalism approach which considers that difference in intelligence in different individuals is because of quality of environment of children and,
- (c) The interaction approach which adopts the view that differences between individuals are the outcome of interactions between heredity and environment.

All these three approaches in case of intelligence development can be discussed in the following ways-

(a) Extreme Genetic Determinism Approach or the Heredity theory explains that intelligence is completely determined by the genetic factors. The chief exponents of the heredity theory were Galton, Karl Pearson, Mc. Dougall.

Galton in the year 1869 conducted a research work “Hereditary Genius”. In this work he tried to prove that when fathers are of superior level intelligence, then there is high probability of occurrence of greatly gifted children. He had experimented with identical twins and had found that twins exhibited marked similarity in their behaviour where heredity played the dominant role.

According to Karl Pearson the influence of environment is far less than the heredity in determining the intelligence. He had given evidence to show that for the people of same race within a given community, influence of heredity is seven times more than that of environment.

In 1969, Jensen in an article firmly expressed that genetic factors are strongly responsible for differences in intelligence. Jensen wrote his article after a research study carried over 1200 California School children taking from both black and white community. In that study it was found that black children scored 16 points lower in I.Q. test than that of the white children.

In 1975, Wilson conducted a twin study. In this study he tried to test I.Q. over 100 pairs of twins on the Wechsler scales at their age of 4, 5 and 16. He found a strong correlation between the I.Q. scores of identical twins in comparison to the scores of fraternal twins.

In 1981, Bouchard and McGue conducted a study and reported the results in comparative way by application coefficient of correlation. The

results show that- the Coefficient of Correlation between identical twins is 0.86, between parents and children 0.56, between brothers and sisters 0.53, between half siblings 0.31 and between cousins 0.15. With the help of this study report, they tried to establish that co-efficient of correlation is higher in case of closer blood relationships and it decreases at the decrease of magnitude of blood relation. So this study proves that heredity is mainly responsible for intelligence development.

In this way, several examples can be noted here in establishing the hereditary approach. But much controversy is also there against these arguments which will be discussed in next the approach, that is-~~in~~ environmental approach.

STOP TO CONSIDER :

- Heredity theory says that an individual's intelligence is exclusively determined by the genetic factors
- Bouchard, Mc. Dougall, Karl Pearson, Galton, etc. are the main supporters of genetic theory of intelligence.

(b) Extreme Environmentalism approach or Environmental theory gives lots of evidences in support of the role of environment on intelligence development. J.B. Watson was the main supporter of environmental theory of intelligence who stated, "Give me a child, I will make it as you want". Hereditary factors are discounted in this theory. Individual differences in intellect, personality, performance, etc. are all the outcome of learning and experience. So it is- differences in the quality of the environment that cause inequalities between individuals.

Evidence of strong Environmental Influences on Intelligence can be found in the following studies-

Schiff et al. of France in 1978 conducted a study on the I.Q. scores of children adopted by family from high socio-economic status. These I.Q. scores were compared to those of their siblings' scores who had not been adopted. The average I.Q score of adopted children was 111 and it was higher scorer in comparison to their siblings 95. The study proved that good environment can enhance the level of IQ.

In 1984, Gottfried carried out a study and concluded that if the children are subjected to certain forms environmental stimulation during the early stages of life span, their intellectual development gets adversely affected

McGue & others in 1993 studied on identical twins. Identical twins were taken from both the groups means twins reared apart and twins reared in same environment. The result showed that the twins reared apart have less similar level IQ's than identical twins reared in the same environment.

Ceci in 2001 found that school attendance has an impact on development of intelligence or in improving I.Q. scores.

In this way, some factors such as family, education, enriched social environments, nutrition, and peer groups have all been linked to differences in IQ. For example, a child may be born with genes for brightness, but if that child grows up in a deprived environment where he is malnourished and lacks access to educational opportunities, he may not score well on measures of IQ.

(c) The Interaction approach of intelligence views that heredity and environmental effect on intelligence development cannot be separated. In order to study the impact of environment on intelligence, we have to take subjects with the same heredity. After keeping them in different environments comparison can be made. Again the thing is same for studying the impact of heredity on intellectual development. Here the environmental factors must be identical and individuals of different heredity are brought up in same environment and scores are compared. The discussion done above makes it clear that heredity and environment are not separable. Thus we can conclude that all the qualities of life are in the heredity and all the evocations of qualities depend on the environment. In this way, both heredity and environment are two ultimate determinants of every individual.

CHECK YOUR PROGRESS:

Q.3. Watson was a supporter of environmental approach. (Write 'True' or 'False'.)

Q.4. Write the meaning of the term heredity.

.....
.....
.....

3.6 Piagetian Theory of Intellectual Development:

Jean Piaget, a Swiss Psychologist developed a theory of Intelligence in 1936 which is known as cognitive theory. It was the first theory to make systematic study on cognitive development. According to Piaget, children are born with a very basic mental structure based on which all subsequent learning happens. The very purpose of this theory is to explain the mechanism and process by which an infant becomes a child, after that a child develops to an individual having thinking and reasoning capacity.

To understand this theory, we have to study three basic components suggested by Piaget. These components are-

- (i) Schemas
- (ii) Adaptation processes and
- (iii) Stages of cognitive development

Schema

A schema can be defined as a set of linked mental representations of the world, which we use both to understand and to respond to situations. A schema represents a unit of one's cognitive structure in the form of general potential to perform some kind of particular behaviour. For example, infants' initial cognitive structure incorporates only those cognitive abilities or potentials which help them to do their necessary acts like grasping objects, sucking mother's nipple, etc. Here, sucking schema refers to one's general cognitive ability or potential to suck objects. In this way, various schemas with their contents form the basic structure of children's mind. He said that as a child gets older - his or her schemas become more numerous and elaborate. When children grow, they come into contact with physical and social environment. As a result, they are able to form different schemas and it leads to change and modify their cognitive structure. The assumption is that we store these mental representations called "Schemas" and apply them when needed.

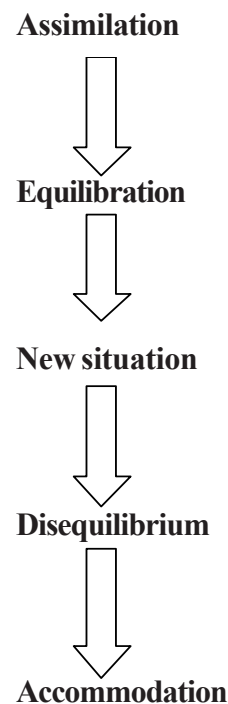
Intellectual growth as a process of Adaptation

According to Piaget, intellectual growth is a process of adaptation means adjustment to this world. This adaptation happens through Assimilation, Accommodation and Equilibration. **Assimilation** means the use of existing knowledge (schema) to deal with a new object or situation. It is a matching act between already existing schema and new environmental needs.

Accommodation refers to that situation when the existing knowledge (schema) does not work to deal with a new situation and it needs to be changed. In the process of accommodation, one has to learn new ways of thinking and behaving by making changes in one's existing cognitive structure.

Equilibration means a balanced or harmonious relationship between the child and his environment. Piaget asserted that the process of assimilation and accommodation helps the child to maintain a harmonious relationship between himself and his environment. This adaptation mechanism is nothing but Equilibration. It is the force which drives the learning process as we do not like to be frustrated and want to maintain balance by mastering the new challenge (accommodation).

This adaptation process of intellectual growth can be shown with the help of the following chart-



Stages of Cognitive Development

Piaget proposed four stages of intellectual development which are-

- (i) Sensori-motor stage (From birth to 2 years)
- (ii) Pre-operational stage (From 2 to 7 years)
- (iii) Concrete operational stage (From 7 to 11)
- (iv) Formal operational stage (From 11 to adolescence and adulthood)

According to Piaget, children's intellectual development is a matter of biological maturation and interaction with the environment. He never claimed that all children reach a particular stage at a definite age. He just gave indication of ages at which the average child can reach each stage. The descriptions of each stage are discussed below.

(i) Sensori-motor stage (From birth to 2 years)

Characteristics of Sensori-motor stage are-

- (a) The child cannot acquire language skill at this stage. It is characterized by absence of language.
- (b) This stage is confined to infants' knowledge gained through motor and sensory interaction with the environment.
- (c) This stage is characterized by a limited number of uncoordinated reflexes like sucking, looking, reaching and grasping by the neonates.
- (d) The main achievement during this stage is 'object performance'. Object performance means the child knows that the thing/object still exists even if it is hidden.
- (e) By the end of the Sensori- motor period children develop a permanent sense of self and object.

STOP TO CONSIDER :

- Piaget's theory of intelligence is based on stages not on age.
- Total four stages of intellectual development are found in Piaget's theory which are- (a) Sensori-motor stage (b) Pre-operational stage (c) Concrete operational stage and (d) Formal operational stage

(ii) Pre-operational stage (From 2 to 7 years)

During this stage the young children starts to think symbolically. They begins to ask for something through language rather than just reaching out for the object. Pre-operational stage can again be subdivided into two- (a) Symbolic function sub-stage and (b) Intuitive phase.

- (a) Symbolic function sub-stage which is also known as pre-conceptual phase comprises of approximately two to four years of age. At this stage, children cannot yet manipulate and transform information in a logical way. Their thinking is quite illogical. However, they now can think in images and symbols. Other examples of mental abilities are language and pretend play. Symbolic play is when children develop imaginary friends or role-play with friends. Children's play becomes more social and they assign roles to each other. Some examples of symbolic play include playing house, or having a tea party. The type of symbolic play in which children engage is connected with their level of creativity and ability to connect with others. Another characteristic of this stage is that children's intellectual structure is ego-centric in nature. Egocentric means children see the world from their own standpoint.
- (b) Intuitive phase period is between four to seven years. During this period, children tend to become very curious and ask many questions. They start to question by use of primitive reasoning. Irreversibility is a concept associated with this stage which is closely related to the ideas of centralization and conservation. Irreversibility refers to when children are unable to mentally reverse a sequence of events. In case of them, running from X to Y may not carry the same meaning as running from Y to X. Children show a marked inability to conserve continuous quantity.

(iii) Concrete Operational Stage (7 to 11 years)

Characteristics of concrete operational stage are-

- (a) Children begin to work with logical or operational thought.
- (b) Children learn to deal with concepts and ideas which are in mental terms. This means child can work things out, internally in their head beyond their physical world.
- (c) Children can think in terms of a set of interrelated principles rather than single bits of knowledge.
- (d) Their ego-centric style of thinking gets eliminated at this stage.
- (e) Children develops the ability to conserve number, mass and weight both in terms of quantity and number of objects. They can think that change in appearance of an object may not alter its quantity.

(iv) Formal Operational Stage (From 12 years to adolescence)

Formal operational stage is the final stage of intellectual development according to Piaget. The main characteristics of this stage are-

- (a) At this stage people develops the ability to think abstract concepts and logically tests hypotheses.
- (b) Creative aspects or talents become very much visible in children at this stage.
- (c) Hypothetical and deductive reasoning is possible by children at this point.

Piaget stated that after the expiry of all these stages one by one, the child is supposed to reach the full intellectual potential. A person may discover the solutions of any problem through mental manipulation of symbols, through scientific thinking and through hypothetical analysis.

CHECK YOUR PROGRESS:

Q.5. What are the basic components of Piaget’s theory?

.....

Q.6. Write any two characteristics of Sensori-motor stage.

.....

.....

3.7 Concept of Multiple Intelligence (MI):

Dr. Howard Gardner, a professor of education at Harvard University developed the theory of multiple intelligence in the year 1983. As a result of development in recent cognitive research, this theory has emerged. According to this theory, students possess different kinds of minds and therefore learn, remember, perform, and understand in different ways.

This theory states, “*We are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, the use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Where individuals differ is in the strength of these intelligences - the so-called profile of intelligences -and in the ways in*

which such intelligences are invoked and combined to carry out different tasks, solve diverse problems, and progress in various domains.”

Professor of Psychology Dr. Gardner proposes nine different intelligences. Those nine intelligences and their nature in Multiple Intelligence (MI) theory can be explained in the following way-

- **Linguistic intelligence** (word skill dominated): They have well-developed verbal skills and sensitivity to the sounds, meanings and rhythms of words
- **Logical-mathematical intelligence** (number/reasoning smartness): These people have the ability to think conceptually and abstractly, and capacity to discern logical or numerical patterns.
- **Spatial intelligence** (picture smartness): Children of this category have the capacity to think in images and pictures, to visualize accurately and abstractly.
- **Bodily-Kinesthetic intelligence** (body skills dominated): Ability to control one's body movements and to handle objects skillfully.
- **Musical intelligence** (music smartness): Such types of people possess the ability to produce and appreciate rhythm, pitch and timber.
- **Interpersonal intelligence** (smartness related to deal with people): This is the capacity to detect and respond appropriately to the moods, motivations and desires of others.
- **Intrapersonal intelligence** (self smart): Capacity to be self-aware and in tune with inner feelings, values, beliefs and thinking processes.
- **Naturalist intelligence** (nature smart): Ability to recognize and categorize plants, animals and other objects in nature
- **Existentialist (deep thinking Skill)**: They have sensitivity and capacity to tackle deep questions about human existence, such as the meaning of life, why do we die, and how did we get here.

Among these nine, the first seven were introduced in the year 1983. Later, in 1999 the last two were newly added by Gardner. All the nine intelligences of MI theory and their skills with career preferences can be presented with the help of the following table-

Among these nine, the first seven were introduced in the year 1983. Later, in 1999 the last two were newly added by Gardner. All the nine intelligences of MI theory and their skills with career preferences can be presented with the help of the following table-

	Intelligence	Skills and Career Preferences
1.	Verbal-Linguistic Intelligence	Skills - Listening, speaking, writing, teaching. Careers - Poet, journalist, writer, teacher, lawyer, politician, translator
2.	Mathematical-Logical Intelligence	Skills - Problem solving (logical & math), performing experiments Careers - Scientists, engineers, accountants, mathematicians
3.	Musical Intelligence	Skills - Singing, playing instruments, composing music Careers - Musician, disc jockey, singer, composer
4.	Visual-Spatial Intelligence	Skills - puzzle building, painting, constructing, fixing, designing objects Careers - Sculptor, artist, inventor, architect, mechanic, engineer
5.	Bodily-Kinesthetic Intelligence	Skills - Dancing, sports, hands on experiments, acting Careers - Athlete, PE teacher, dancer, actor, firefighter
6.	Interpersonal Intelligence	Skills - Seeing from other perspectives, empathy, counseling, co-operating Careers - Counselor, salesperson, politician business person, minister
7.	Intrapersonal Intelligence	Skills - Recognize one's strengths and weaknesses, reflective, aware of inner feelings Careers - Researchers, theorists, philosophers
8.	Naturalist Intelligence	Skills - Recognize one's connection to nature, apply science theory to life Careers – Scientist, naturalist, landscape architect
9.	Existential Intelligence	Skills – Reflective and deep thinking, design abstract theories Careers – Scientist, philosopher, theologian

3.7.1 Educational Significance of MI Theory:

In our educational institutions, a lot of emphasis is given on academic development of children. Along with scholastic development, our society as well as school mostly pay attention to the linguistic and logical-mathematical intelligence. In this traditional educational system, people who possess different types of potentials are often ignored. In this regard Prof. Gardner observes that every educational institution must pay equal attention to those children who are good in art, music, architecture or any other bodily activity. he states, = “*We should also place equal attention on individuals who show gifts in the other intelligences: the artists, architects, musicians, naturalists, designers, dancers, therapists, entrepreneurs, and others who enrich the world in which we live.*”

But very unfortunately, it is seen that there are lots of children who are not getting the opportunity for development of their potentials in spite of having these gifts from God. Many of such gifted children do not receive much reinforcement at school. Many of these kids, in fact, end up being labeled “learning disabled,” When the unique ways of thinking and learning of these children are not according to the nature of a heavily linguistic or logical-mathematical classroom, then they are believed to be suffering from as “ADD” (attention deficit disorder) or are simply called underachievers.

CHECK YOUR PROGRESS:

Q.7. Who introduced the Multiple Intelligence theory?

.....

Q.8. How many intelligences are there in M.I. theory?

.....

The theory of multiple intelligences proposes a major transformation in the way our schools are run. It suggests that teachers must be well trained to present their lessons in a wide variety of ways using music, cooperative learning, art activities, role play, multimedia, field trips, inner reflection, and much more. The good news is that the theory of multiple intelligences has grabbed the attention of many educators around the country, and hundreds of schools are currently using its philosophy to redesign the way it educates children. The bad news is that there are thousands of schools still out there

that teach in the same old dull way, through dry lectures, and boring worksheets and textbooks. The challenge is to get this information out to many more teachers, school administrators, and others who work with children, so that each child has the opportunity to learn in ways harmonious with their unique minds.

3.8 Concept of Social Intelligence:

Social intelligence is one of different clusters of “Intelligence” which means the capacity to know oneself and capacity to interact with other people effectively understanding them very well. Simply it means the ability to know oneself as well as the ability to know others. An individual’s proficiency at social skills and social behaviour is known as social intelligence. It mainly refers to the “street smart” and ‘common sense’ quality of a person. Influence of environmental factors is very important in the development of social intelligence. It is not acquired by birth. Verbal and communication skills contribute a lot in the development of this skill. Thorndike in the year 1920 formulated this concept for the first time and defined that social intelligence is the ability to understand men and women, boys and girls, to act wisely in human relations.

The term “competency” is associated to describe the meaning of social intelligence clearly. It refers to the ability or competency to understand someone’s environment and healthy reaction capacity of a person to others for the sake of sound social environment. Healthy reaction means that type of behaviour which does not disturb the interpersonal relationships of people in a society. According to Social Scientist **Ross Honeywill**, “Social intelligence is an aggregated measure of self and social awareness, evolved social beliefs and attitudes, and a capacity to manage complex social change.”

Being able to effectively communicate with a wide range of people in various settings is an important indicator of proficient social intelligence. Behaving appropriately in social settings is also an important quality which includes knowledge of social norms and rules.

Another integral component of social intelligence is to be a good listener.

Social intelligence is correlated with emotional intelligence in that it is important to be able to read others’ emotions and feel empathy for other

people. Social intelligence is a developed and learned skill that can be improved by an individual taking action and working on their social skills.

3.8.1 Key Elements of Social Intelligence:

The key elements of Social intelligence are-

- (a) Verbal fluency or conversational skill
- (b) Knowledge of Social roles, rules and scripts
- (c) Effective listening skill
- (d) Understanding others feeling and thinking
- (e) Role playing and self-efficacy skill
- (f) Impression management skill

CHECK YOUR PROGRESS:

Q.9. Define Social intelligence.

.....

Q.10. Mention any three key elements of social intelligence.

.....

3.9 Concept of Emotional Intelligence:

Emotional Intelligence is a combined concept of two different elements- one is Emotion and the other is Intelligence. So, in order to understand the concept of emotional intelligence, at first we must know the meaning of these two terms.

Emotions play a vital role in regulating the behaviour and activities of human being. Emotions are indispensable part of our life. Sometimes we consider emotions to be the driving force or we may say living force in guiding our behaviour. The term emotion has been derived from the Latin root “emovere” which means “to stir up” or “to excite”. So, from this etymological meaning, emotion means to be stirred up or excited state of an individual. It can be described as the agitating or excited state of our mind and body. It refers to some sort of affective experiences characterized by physiological changes that lead to perform some acts which are little bit different from normal behaviour. Love, Anger and Fear are the three basic

emotions of a child. Normally, emotions are associated with instincts and this is vice versa.

Intelligence is the ability to do, ability to learn and ability to think. It is the aggregate or total capacity of an individual with the help of which the person can acquire new knowledge. It is adaptability of a person because of which he can cope up in any kind of new situation.

Thus the concept of Emotional Intelligence has been formulated by combining these two concepts- emotion and intelligence. Like general intelligence, emotional intelligence is also the product of a person's own heredity and its interaction with his environmental forces. Peter Salovey and John Mayer, these two researchers introduced this concept of Emotional Intelligence and it was popularized by Daniel Goleman in his book "Emotional Intelligence" published in the year 1996. It is the ability to recognize, understand and manage one's own emotion along with recognizing, understanding and influencing the emotions of others. Emotional intelligence has been defined by Peter Salovey and John Mayer as "the ability to monitor one's own and other people's emotions, to discriminate between different emotions and label them appropriately, and to use emotional information to guide thinking and behavior." Emotional intelligence is the ability to perceive emotion with proper justification, integrating it with thought process, understanding emotion and also the capacity to manage it with rationalization power.

There are total five basic Components of Emotional Intelligence: -

- (a) Self-awareness: Self-awareness is the ability to understand and recognize one's own emotions. Apart from recognizing and understanding one's own emotion, it also refers to being aware of the effect of one's mood, actions and emotions upon others. Self-aware individuals also recognize the relationships between the things they feel and how they behave. These individuals are also capable of recognizing their own strengths and limitations, are open to new information and experiences, and learn from their interactions with others.
- (b) Self-regulation: Self regulation refers to expression of one's own emotions at right time, right place and in right platform. It is all about the expression of someone's own emotions appropriately.

- (c) Empathy: Empathy means the ability to understand another individual's feelings. Besides understanding another person's feelings, it covers the type of responses that should be shown by people after understanding those emotions.
- (d) Motivation: Motivation is a driving force of an individual which intends us to do something or to act in a certain way. Emotionally intelligent people have a passion to fulfil their own inner needs and goals instead of doing tasks for fame, money and recognition. They seek things that lead to their internal rewards.
- (e) Social Skills: Social skills mainly involve the ability of communication or interaction of individuals with others in the society. To be emotionally intelligent, social skills like active listening quality, verbal communication skills, leadership and persuasiveness must be present in a person.

STOP TO CONSIDER :

- Emotional intelligence is the ability of a person to understand and control his own emotion as well as the ability to understand others emotions also.
- Total five basic components of emotional intelligence are- self awareness, self-regulation, empathy, motivation and social skills.

3.10 Let us Sum Up

In this chapter, we have discussed the following main points-

- Meaning and nature of intelligence as a general mental ability of an individual to do or act purposefully, to think rationally and to deal effectively with the environment were discussed.
- Influence of Heredity and Environment on Intelligence was discussed in terms of in three different approaches- Heredity theory, Environmental theory and Interactional theory.
- The Piagetian Theory of Intellectual Development was described in detail by highlighting the main characteristics of all the four stages.

- Finally, the concepts of Multiple Intelligence, Social Intelligence and Emotional Intelligence were discussed briefly.

3.11 Further Reading (References):

1. Armstrong, Thomas (2018). *Multiple Intelligences*. American Institute for Learning and Human Development. (www.institute4learning.com)
2. Bhatia, H.R. *Elements of Educational Psychology*.
3. Chauhan, S.S. *Advanced Educational Psychology*.(Sixth revised edition.) Vikas Publishing House PVT LTD. Noida, 1998.
4. Dr. Karl Albrecht (2004). *Social Intelligence Theory*. www.karlalbrecht.com..
5. Mangal, S.K. (2014) *Advanced Educational Psychology* (Second Edition). PHI Learning Pvt. Ltd., Delhi.

3.13 Discussing Questions from “Check Your Progress”:

Ans. to Q. No. 1. Latin root “*Intelligentia*”

Ans. to Q. 2. Wechsler said, “Intelligence is the aggregate or global capacity of an individual to act purposefully, to think rationally and to deal effectively with the environment”

Ans. to Q.3. “True”

Ans. to Q. 4. Heredity refers to all the biological and psychological characteristics which we acquire from our forefathers through chromosomes and genes.

Ans. to Q.5. The basic components of Piaget’s theory are-

- (i) Schemas
- (ii) Adaptation processes and
- (iii) Stages of cognitive development

Ans. to Q. 6. Two characteristics of sensori-motor stage are-

- (i) This stage is confined to infants’ knowledge gained through motor and sensory interaction with the environment.
- (ii) This stage is characterized by a limited number of uncoordinated reflexes like sucking, looking , reaching and grasping by the neonates.

Ans. to Q. 7. Dr. Howard Gardner

Ans. to Q.8. Total 9 intelligences are there in M.I. theory

Ans. to Q. 9. Social Scientist **Ross Honeywill**, defined “Social intelligence is an aggregated measure of self and social awareness, evolved social beliefs and attitudes, and a capacity to manage complex social change.”

Ans. to Q.10. Three key elements of Social intelligence are-

- (g) Verbal fluency or conversational skill
- (h) Knowledge of Social roles, rules and scripts
- (i) Effective listening skill

—xxx—

Unit IV

Reasoning, Problem solving and Creative thinking:

Contents:

- 4.0 Introduction
- 4.1 Learning Objectives
- 4.2 Meaning and Definitions Reasoning
- 4.3 Steps of Reasoning
- 4.4 Problem Solving: It's Meaning and Characteristics
- 4.5 Meaning of Creativity
- 4.6 Characteristics of Creativity
- 4.7 Identification of Creative children/Characteristics of creative personality
- 4.8 Development of Creativity or Measures to Foster creativity in children
- 4.9 Let us Sum Up
- 4.10 Further Reading
- 4.11 Check Your Progress

4.0 Introduction

Human beings are called rational animals because of their unique capacity to judge. It is on account of this ability that human beings are superior to animals. Thinking, reasoning and creative abilities contribute a lot in the development of this judgement power in individuals and they are necessary for effective teaching learning process also. Therefore, in this unit we will discuss what we understand by reasoning, problem solving and creative thinking; and their characteristics. In addition, development and identification of creativity and ways of fostering creativity will be discussed here.

4.1 Learning Objectives:

After the discussion of this unit, you will be able to-

- understand the concept of Reasoning

- explain the meaning and characteristics of Problem solving
- understand the concept of Creativity
- identify the creative children
- describe how creativity can be fostered in children

4.2 Meaning and Definitions of Reasoning:

Reasoning is a mental process which takes place on account of problems created with individuals (? idea is not clear). It is a form of higher level thinking which is also called logical thinking. When thinking is controlled by logical analysis for the purpose of solving a problem, then it becomes reasoning. Therefore, reasoning always deals with a definite purpose or goal. Reasoning is said to be more productive than thinking and it is an advanced stage in the complex process of thinking. One's cognitive activities are always controlled by reasoning and it also influences the total behaviour of a person. 'What to do' and 'what not to do', 'what should be' and 'what should not be', answering these questions is possible only with the help of a well-organized brain and deliberate efforts. When our cognitive abilities and deliberate efforts are applied to solve problems to adjust to a new environment, it takes the form of reasoning. The process of reasoning requires **two conditions- first, the person's mind should have completely formed concepts and second, that he should be endowed with the power of reaching decisions.** Because of the absence of these two conditions, children are not able to reason. In the process of reasoning, the individual reasons from the past known circumstances to the present or future unknown conditions and here past experiences of the person functions as the base. However, it is not an easy task to define reasoning in a concrete way though various psychologists have defined it in different ways. Some of them are-

- According to Garrett, "Reasoning is step-wise thinking with a purpose or goal in mind."
- Gates said, "Reasoning is the term applied to highly purposeful controlled selective thinking."
- In the opinion of Munn, "Reasoning combining past experience in order to solve a problem which cannot be solved by mere reproduction of earlier solution."

- According to Woodworth, “In reasoning, items (facts / principles) furnished by recall or present observation or both; are combined and examined to see what conclusion can be drawn from the combination.”
- Skinner said, “Reasoning is the word used to describe the mental recognition of cause-and-effect relationships. It may be prediction of an event from an observed cause or the inference of a cause from an observed event.”

After going through the above definitions, it is clear that reasoning is higher level thinking in the form of careful, systematic and well-organized brain functioning behaviour. It is a highly specialized thinking which helps an individual to explore mentally the cause and effect relationship of an event. Further, it may also be defined as a logical type of thinking which finds solution to a problem by adopting some well-organized systematic steps based on previous experiences combined with present observation.

CHECK YOUR PROGRESS:

- Q.1.** Give one definitions of reasoning.
- Q.2.** Write two conditions of the reasoning process.

4.3 Steps of Reasoning:

John Dewey described reasoning as speculative thinking and analyzed it with the help of the following five steps in it:

- (1) A felt difficulty:** An individual starts to reason only when he is confronted by specific problem and this may be theoretical as well practical problem.
- (2) Locate and define difficulty:** Second step is the identification of the location of the difficulty or problem along with defining of it. For this one is to analyse the problem tracking it down to a specific position.
- (3) Organize informations or collecting relevant data:** it is very natural for a person to collect all required information or data related to the problem before he starts to reason. For example, in the investigation of crime, one piece of information may help to clear the whole picture for an individual, if he reasons with it.

(4) Evaluation of hypothesis: In solving a problem an individual evaluates all available informations and this evaluation of informations helps to evaluate the hypothesis the individual formed at the time of defining the problem.

(5) Apply the solution: The final step is the application of solution or inference to solve the problem as to know the validity of the inference it is the only way.

Thus, on the basis of all the definitions and considering the Dewey's analysis, it can be said that in general the process of reasoning follows some systematic steps which are -

- (i) Goal setting: On the basis of experienced problem, goal or purpose is set to which reasoning is directed.
- (ii) Search for various possibilities of Problem: A proper analysis is needed in order to know why the problem has occurred. So, after goal setting, various possibilities of the problem are searched.
- (iii) Analysis of available alternatives for solution: After studying the cause and effect relationship, efforts are taken to analyse available alternatives so that set goals can be realised.
- (iv) Selection of the most appropriate way of solution based on observation: After careful analysis of all the available alternatives, the most appropriate possibility or solution is selected.
- (v) Finding out the validity of selected solution: Finally, validity of the selected possibility or solution is tested through mental exercise.

In this way, the reasoning process is completed and it may be classified into two broad categories- (a) Inductive reasoning and (b) Deductive reasoning

Inductive reasoning follows the process of induction. It is called induction means when a general conclusion is drawn on the basis of particular evidences or certain specific facts (statements). According to inductive reasoning, if a statement is true in one particular case, it will also be true in all types of serial cases and accordingly a general conclusion is drawn. For example,

Ram is Mortal, Jodu is mortal, Hari is mortal. So, all men are mortal.

Deductive reasoning follows the principle of deduction. It is just the opposite of inductive reasoning. On the basis of a well established known

fact or on the basis of a general statement, a conclusion for a specific case is drawn. For example,

All men are mortal. Hari is a man. So, Hari is mortal.

STOP TO CONSIDER :

- When thinking is controlled by logical analysis for a definite purpose then it becomes reasoning. Reasoning is mental recognition of cause-and-effect relationships. It is prediction of an event from an observed cause or the inference of a cause from an observed event.
- Reasoning is classified into two categories- (a) Inductive reasoning and (b) Deductive reasoning

4.4 Problem Solving: It's Meaning and Characteristics

In educational psychology, problem solving is the process of finding solutions to the problems encountered in educational or social life. It refers to a collective concept involving the productive work engaged in the evaluation of situation and strategy worked out to reach one's set goals. This process starts with problem finding and problem shaping and therefore, it is a process of using different methods in an orderly manner to find solutions to the problems. It is the ability to understand what the goal of the problem is, and what rules could be applied. It represents the key to solving the problem. Most of the time, the problem requires the mental power to solve it or coming up with a creative solution. Problem solving behaviour is a deliberate and purposeful activity of an individual with the help of which he can realise his set goals by employing some new methods and scientific steps.

According to Woodworth and Marquis, "Problem solving behaviour occurs in novel or difficult situations in which a solution is not obtained by the habitual methods of applying concepts and principles derived from past experience in very similar situations."

Skinner defined, "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."

Mayer & Wittrock in 2006 said, “Somewhat less open-ended than creative thinking is **problem solving**, the analysis and solution of tasks or situations that are complex or ambiguous and that pose difficulties or obstacles of some kind”

From the definitions cited above we can conclude that problem solving is an active and serious act which involves the use of some novel methods, higher thinking and systematic planned steps for the realisation of set goals. An individual’s problem solving behaviour depends upon a large number of factors like - nature of the problem whether it is simple or complex, inappropriate or appropriate definition of the problem, the effect of unfavourable circumstances of the problem, lack of resources in the solution of the problem, the level of previous learning, interest and motivational level of the problem solver, etc. After realising that a problem has been encountered, the person follows some scientific steps like- Goal setting, Awareness of the problem, Problem Understanding, Collection of relevant information, Evaluation of Hypothesis and Application of the selected Method for Problem Solving.

STOP TO CONSIDER :

- Problem solving is an active and serious act which involves the use of some novel methods, higher thinking and systematic planned steps for the realisation of set goals
- Problem solving behaviour follows some scientific steps like- Goal setting, Awareness of the problem, Problem Understanding, Collection of relevant information, Evaluation of Hypothesis and Application of the selected Method for Problem Solving.

Nature or Characteristics of problem solving can be discussed in the following ways-

- (1) Problem solving is a process which occurs in the cognitive system of an individual.
- (2) Problem solving requires representation and manipulation of knowledge that is directed towards a goal.

- (3) Problem solving is intensely individual in nature. The prior knowledge and skill level of the problem solver determine the facility the person has to solve the problem.
- (4) Problem solving can cover a wide range of problems from very broad to very specific.
- (5) Problem solving is quite deliberate, conscious and serious efforts on the part of the problem solver.
- (6) Problem solving behaviour arises only when it is very essential for the individual to reach the set goal overcoming the serious interferences and which cannot be solved by habitual methods.
- (7) A person has to utilise his thinking and reasoning powers in the application of different systematic steps for solving the problem.
- (8) Problem solving behaviour helps in adjustment with the situation by removing the problem, and ultimately it helps to satisfy his motives by realising set goals.
- (9) Problem solving behaviour helps in growth and development of personality by making life happier and wiser by appropriate adjustment.
- (10) Problem solving contributes a lot to the progress and development of a society.

CHECK YOUR PROGRESS:

Q.3. Mention any two factors of problem solving behaviour.

Q.4. Write two characteristics of problem solving behaviour.

4.5 Meaning of Creativity

Creativity is the outcome of creative thinking. Creative thinking is a process which we use when we have to come up with a new idea. It is the merging of ideas which have not been merged before. Creativity is a very precious and unique quality of an individual that enables him to solve

complicated problems in innovative ways. Brainstorming is one form of creative thinking which involves merging someone else's ideas with one's own to create a new one. Here an individual uses the ideas of others as a stimulus of his own. Creativity means looking at something in a new way to find out a new result. It is a concept which can be defined as "thinking outside the box."

Creativity can be described as the mental capacity or ability of an individual to create, discover or produce a new or novel idea or object including the rearrangement or reshaping of what is already known to him which proves to be a unique personal experience. It can simply be understood as the ability of an individual to imagine and invent something new. It is thinking differently. Various psychologists have defined creativity in different ways which are-

- Robert E. Franken: "Creativity is defined as the tendency to generate or recognize ideas, alternatives, or possibilities that may be useful in solving problems, communicating with others, and entertaining ourselves and others."
- According to Guilford, "Creativity is the – (a) ability to go beyond the immediate solution (b)ability to redefine the problem or some part of it (c) ability to cope with ideas that are unusual and (d) ability to change or having new approach to the problems."
- Skinner said, "Creative thinking means that the predictions of an individual are new, original, ingenious and unusual. The creative thinker is one who explores new areas and makes new observations, new predictions, new inferences."
- According to Spearman, "Creativity is the power of human mind to create new contents by transforming relations and thereby generating new correlates".
- Paplia and Olds said, "Creativity is the ability to see things in a new and unusual light, to see problems that no one else may even realize exist and then to come up with new. Unusual and effective solutions."
- Simpson defined, "Creativity is the ability to break away from the usual way of thinking and then form altogether a different pattern of thought."

- Bartlett said, “Creativity is an adventurous thinking or a getting away from the main track, breaking out of the mould, being open to experience and permitting one thing to lead to another”
- According to Stein, “Creativity is a process which results in novel work that is accepted as tenable to useful or satisfying to a group of people at some point in time.”

In this way, creativity is a concept always related to novelty. It means seeing or expressing new relationships among things or ideas. New personal experience means something new must be there in the activity to be creative. It is the power of human mind to discover something new.

CHECK YOUR PROGRESS:

Q.5. Give the Guilford’s definition on creativity.

.....

4.6. Characteristics of Creativity

Characteristics of Creativity are discussed below-

- (i) Commitment towards problems is the first characteristic of creativity. In order to be creative, a person must be well aware of the problems in his circumstances and make every effort to find out new solutions to these problems.
- (ii) Creativity is the ability to synthesise ideas or objects. Already known facts and principles or previously known techniques can be rearranged and reshaped to make it fresh and novel by synthesising ideas or with the help of combination of objects.
- (iii) Creativity is the individual’s ability to develop something original. Presence of creative ideas in one individual can never be equal to the creativity of another individual. But one’s creative ideas and works are assessed by other individuals only in the society.
- (iv) It is the capacity to accept challenges that emerge out of new situations. It shows the adventurous spirit of individuals. Because of their capacity to accept challenges (or the capacity to take risks), they can go beyond socially conformist behaviour.

- (v) According to Guilford, creative thinking means divergent thinking and uncreative thinking means convergent thinking. Creativity has several dimensions which means it enables a person to solve his problem by evolving various general multiple possible solutions.
- (vi) Flexibility of thinking and behaviour is one of the prominent characteristics of creativity. This flexibility of thinking is similar to independent thinking style because of which creative children can think over a problem from various dimensions.
- (vii) It is universal in nature. Every individual has a creative sense to some extent. Every one of us possesses and is capable of demonstrating creativity to some degree.
- (viii) Creativity leads to innovations in society. It produces something new or novel, but this novelty does not necessarily imply the production of a totally new idea or object.
- (ix) Creativity is innate as well as acquired ability. Though one's creativity is said to be God-given gift, but the cultural background, education and training influence a lot in nourishing creativity. It is to mention that children's creativity is mostly identified by the teachers in the school environment.
- (x) This creative thinking process can be **accidental** or **deliberate**.
- (xi) It is a process as well as a product. This concept can be understood better by saying that creativity is a means as well as an end in itself.
- (xii) Creativity is adventurous and open thinking. Adventurous thinking allows a person to express himself according to his will and functions are not restricted by routine.
- (xiii) Separation of creativity from intelligence is not possible. When a person is considered to be creative, then it is implied that the person obviously possesses a minimum level of intelligence also. However many psychologists want to say that creativity is one of the component of multiple intelligence.
- (xiv) Creativity includes ego-involvement under its broad scope. A person's individuality and recognition of ideas are totally merged in his creation. Accordingly a creative person can give proud feeling statement- like- "This is my creation".

- (xv) A feeling of anxiety is always associated with the concept of creativity. This high level anxiety is the cause of his successful productive creation.

CHECK YOUR PROGRESS:

Q.6. Write any five characteristics of creativity.

.....
.....
.....
.....

4.7 Identification of Creative children/ Characteristics of the creative personality:

Following characteristics are important to be remembered to identify a creative child -

1. Creative children are very much courageous in convictions. They show strong conviction in their beliefs and values.
2. Creative individuals have a great deal of energy, but they are also often quiet and at rest.
3. Creative children are more curious to know more and more about his surroundings and about the different perspectives of life.
4. Creative individuals tend to be smart, yet also naive at the same time.
5. Creative individuals have a combination of playfulness and discipline, or responsibility and irresponsibility.
6. Creative individuals alternate between imagination and fantasy at one end, and rooted sense of reality at the other.
7. Creative people seem to harbor opposite tendencies on the continuum between extroversion and introversion.
8. Creative individuals are also remarkably humble and proud at the same time.
9. Creative individuals to a certain extent escape rigid gender role stereotyping and have a tendency towards androgyny.

10. Generally, creative people are thought to be rebellious and independent.
11. Most creative persons are very passionate about their work, yet they can be extremely objective about it as well.
12. The openness and sensitivity of creative individuals often exposes them to suffering pain yet also a great deal of enjoyment.
13. Creative children show independent type of judgment capacity.
14. They have more visionary power of future problem.
15. A creative child always becomes pre-occupied with task. He concentrates all his mental energies on the task in his hand.
16. He has the ability to transfer learning from one situation to another.
17. High degree of sensitivity towards a problem is also one of the characteristics of creative children.
18. They possess high aesthetic value and they have the power of high aesthetic judgment.
19. They have Good memory power and therefore they become the reservoir of general knowledge.
20. Creative children show high respect for the opinions of others and acceptance of disagreement and opinions different from one's own.

However, it should be mentioned that for objective identification of creativity, standardized verbal as well as nonverbal creative tests must be applied by the researchers.

STOP TO CONSIDER :

A creative child can be identified with the existence of some qualities in them like-

- courageous in convictions
- visionary power, high aesthetic value
- more curious to know
- good memory power
- independent type of judgment capacity, etc.

4.8 Development of Creativity or Measures to Foster creativity in children

Fostering or promotion of creativity is not an easy task since it is considered as natural endowment. Still all children can be helped to become creative by giving them a supportive educational environment and rich cultural background. In this regard role of teachers in school campus and parent's role in home environment, both are very important which can be discussed in the following way-

- (i) Encouraging the spirit of Scientific enquiry:** School can take the leading role in development of creativity among children by developing healthy attitude among them. Teachers inside the class as well as outside the class must encourage for scientific enquiry in students. Parents must keep efforts to develop a sound environment for growth and development of positive attitudes for creative ideas within children. Healthy attitude refers to development of positive attitude
- (ii) Providing full Freedom of Thought and Expression:** Freedom of thought and expression is one of the great factors of fostering creativity. Full freedom should be provided to experiment with new ideas and thoughts. We should allow adequate freedom to our children to respond in a particular situation. We must encourage them to put their own ideas when they need a particular kind of novel expression.
- (iii) Use of Brain Storming method:** Brain- storming strategy always emphasizes on gathering various ideas in different ways in response to some problem in a group. The literal meaning of Brain storming is storming a problem by a number of possible ideas and solutions. All the ideas are recorded for later evaluation. In brain storming sessions, first of all students are provided a particular problem in a group. Then they are asked to attack the problem from different angles without any inhibition. After that students are asked to suggest effective ideas for solution as rapidly as possible. Brain storming strategy follows some norms

like- (a) no criticism is allowed as every idea is appreciated
(b) Students are encouraged to put forward the ideas of fellow students apart from their new ideas. It is not restricted to new ideas only (c) At the end of the session all the ideas will be discussed openly in a free environment and the most effective idea will be selected for solution of the problem
(d) No comments are encouraged till the session is over.

- (iv) **Use of Elaboration:** Elaboration is one of the most effective ways of developing creativity in children. The process of elaboration develops some important ingredients of creativity, like- thinking, reasoning and problem solving. Within the framework of classroom teaching, a teacher can use this method of elaboration on regular mode.
- (v) **Opportunity for Ego-involvement:** Every human being is born with his own “Ego” which needs to be satisfied. Researches show that a child’s ego is stronger than that of an adult’s. So, it is very important to satisfy his ego and for this parents and teachers should provide better opportunities. If a child can express his feelings with proud statements like -”I have done this” or “I have solved it at first”, then he becomes more satisfied. Therefore, opportunities should be given to a child so that he can satisfy his ego.
- (vi) **Discouraging memorization for Encouraging original Ideas:** Rote memory always stands against creative expression. In order to develop creativity in children we must discourage this memorization by rote. Only then can original ideas and innovative thoughts of can fully flourish among children.
- (vii) **Opportunity to Develop Imagination:** Imagination is one of the essential elements of creativity. Imagination is directly related to creative ideas for which teachers and parents should give full freedom for the development of imagery powers in children.

- (viii) **Stopping Fear and Hesitation:** In our traditional teaching learning environment, most of the students suffer from inferiority complex. This complexity leads to fear and great hesitation.
- (ix) **Build-up Self-confidence and Self-reliance:** Teachers should always seek for an atmosphere in the school that can build self confidence in the the students. The children should feel confident of their abilities to perform the tasks assigned to them. So, teachers and parents must discover the causes of issues like fear, hesitation or inferiority complex. After knowing the reasons initiatives should be taken for children to express their creative ideas which will make them self-confident and self-reliant in future.
- (x) **Use of Analogy:** Some children are unable to understand their academic problems through direct teaching in class. Usually such kinds of children fail to understand the problem directly but when they are taught with the help of comparative methods, the problem becomes understandable to them. In such a situation, teacher should make use of analogies to clarify difficult concepts.
- (xi) **Following the Talents of Creative Persons in the Community:** In order to develop creativity, children should be encouraged to visit different places nearby to experience artistic, scientific and industrial creative work. If they come in contact with artists or scientists or may be any kind of creative person, they may feel more inspired to think creatively. Schools should organize events where people known for their creative work are invited to interact with students.
- (xii) **Discouraging examination oriented education:** Examination oriented teaching –learning process is negatively correlated to creativity development in children. Our education system is exclusively examination oriented which is preparing some educated unemployed youths having a certificate with good academic records. But this rigid academic environment is killing the creative talents

everywhere in India. Thus, evaluation system should include components that encourage students to use their creativity

- (xiii) **Encouraging curriculum based on the Philosophy of Concept growth rather than facts:** For the promotion of creativity in children, school curriculum should be framed by following the principle of concept growth. Curriculum should be systematically organized to foster creativity on the basis of concepts rather than facts.
- (xiv) **Removal of Blocks to Creative Ideas:** Too much stress for good marks in examination from parents affects the creativity children. Besides, inappropriate teaching method, undemocratic treatment to children, rigid work habit for children may hinder creative development in children.
- (xv) **Encourage Divergent Thinking:** In order to develop divergent thinking and other aspects of creativity, teachers should think of designing special programmes for children. First of all creativity needs to be identified, then energized and guided almost from birth to develop divergent thinking.
- (xvi) **Inspiring children to think over Consequences:** Children should be encouraged by teachers and parents to think over the consequences of an action. The post mortem analysis of consequences is one kind of mental exercise which helps in the development of creative thinking.
- (xvii) **Use of Special Techniques:** Teachers must make use of some special techniques to develop the creative talents of children. Use of teaching models and use of gaming techniques in a playful spirit are always helpful for creativity development.
- (xviii) **Parents and Teachers should practice Creative Thinking:** Teachers and parents must develop the habit of exercising creative ideas and develop their own creative thinking abilities first. Then their students or children will try to follow them considering them to be their role models since children are very imitative by nature.

(xix) Imparting Nursery Education through Art and Music:

Now a days, nursery education or pre-schooling is becoming compulsory for every child. Pre schooling educational institutions must emphasize on art and play as a method of instruction to foster creativity in the children. In fact, for the sake of creativity development whole environment should be dominated by drawing, painting and music with play.

(xx) Encouraging students for Intensive and Extensive Reading:

Creativity development is a matter of cognitive as well as affective domain since creative works need in-depth thinking power which is developed through intensive as well as extensive reading.

CHECK YOUR PROGRESS:

Q.7. Mention any two points regarding the role of school in creativity development.

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4.10. Let us Sum Up:

- Reasoning is a complex mental process which includes step-wise thinking. It is goal oriented or purpose based higher level thinking. Reasoning is also considered as a process of logical thinking which helps to develop problem solving behaviour. There are mainly two types of reasoning- inductive and deductive. Inductive reasoning applies induction process and deductive reasoning is just the opposite of inductive reasoning.
- Problem solving behaviour is a process of application of different methods and rules to solve the problems encountered in novel situations. In this complex behaviour, thinking and reasoning process is applied actively.
- Creativity is the psychological capacity or ability of an individual to create, discover or produce a new idea or object. It is understood

as the ability of an individual to imagine and invent something new. Teachers and the parents can play a very significant role in the development of this mental capacity within the children.

4.11. Further Reading (References):

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3. Chauhan, S.S. *Advanced Educational Psychology*. Sixth revised edition. Vikas Publishing House PVT LTD. 1998.
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4.12 Discussing Questions from “Check your Progress”

Ans. to Q. No. 1. Skinner said, “Reasoning is the word used to describe the mental recognition of cause-and-effect relationships. It may be prediction of an event from an observed cause or the inference of a cause from an observed event.”

Ans. to Q. No. 2. Two conditions of reasoning process are- firstly, the person’s mind should have completely formed concepts and secondly, that he should be endowed with the power of reaching decisions.

Ans. to Q. No. 3. Two factors of problem solving behaviour are - nature of the problem whether it is simple or complex and lack of resources in the solution of the problem,

Ans. to Q. No. 4. Two characteristics of problem solving behaviour are- (a) Problem solving is quite deliberate, conscious and serious efforts on the part of the problem solver and (b) Problem solving behaviour arises only when it is very essential for the individual to reach the set goal overcoming the serious interferences and which cannot be solved by habitual methods.

Ans. to Q. No. 5. According to Guilford, “Creativity is the – (a) ability to go beyond the immediate solution (b) ability to redefine the problem or some part of it (c) ability to cope with ideas that are unusual and (d) ability to change or having new approach to the problems.”

Ans. to Q. No. 6. Characteristics of creativity are-

- (a) Commitment towards problems is the first characteristic of creativity.
In order to be creative, a person must be very well aware of the problems in his circumstances and he makes every effort to find out new solutions to these problems.
- (b) Creativity is the ability to synthesise ideas or objects. Already known facts and principles or previously known techniques can be rearranged and reshaped to make it fresh and novel by synthesising ideas or with the help of combination of objects.
- (c) Creativity is the individual's ability to develop something original. Presence of creative ideas in one individual can never be equal with the creativity of another individual. But the creative ideas and works are assessed by other individuals only in society.
- (i) It is the capacity to accept the challenges of new situations. It shows the adventurous spirit of the individual. Because of their capacity to accept challenges (or the capacity to take risks), they can go beyond socially conformist behaviour.
- (d) Creativity is adventurous and open thinking. Adventurous thinking allows a person to express himself according to his will and functions are not restricted by routine.

Ans. to Q. No. 7. Providing full Freedom of Thought and Expression and

(ii) Use of Brain Storming method

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Unit V

Personality

Contents:

- 5.1 Introduction
- 5.2 Objectives
- 5.3 Meaning and nature of Personality
- 5.4 Development
- 5.5 Genetic and Cultural factors of Personality
- 5.6 Theories of Personality- Trait Theory and Type Theory with special reference to Freud, Adler, Roger, Cattell.
- 5.7 Adjustment Mechanism and Mental Hygiene
- 5.8 Summing Up
- 5.9 References and Suggested Readings

5.1 Introduction:

In our day-to-day life, we often use the term-”personality”. We regard people in terms of their personality and develop attitude towards them. You may often make use of this term to refer to your friend, or any people known to you. This term has a psychological significance. In the field of psychology, personality occupies a very significant place. It is a broad area of study in psychology. In this unit, we will discuss the term ‘personality’ and its various types.

5.2 Objectives:

After going through this unit, you will be able to –

- Know about the concept of personality.
- acquire ideas about development.
- Know the theories of personality.
- Know the adjustment mechanism

5.3 Meaning and nature of Personality:

Etymologically, the term ‘Personality’ originates from the Latin word ‘Persona’, and refers to the mask used by the Greek actors. ‘Personality’

is a term that is used very widely at present. A layman describes it as a sum total of a person's external behavior and appearance. This includes his/her dress, physical appearance, facial expression, motor movements, gestures, qualities of character and so on. **From the psychological point of view personality may be considered as the integrated and dynamics organization of physical, mental, emotional, social and moral qualities of an individual.** They manifest themselves in the process of give and take with others in our social life. The biological elements that constitute personality are a person's instinct, emotions, impulses, needs, aptitudes, urges, temperaments and complexes. Its sociological elements are the acquired habits, interests, complexes, sentiments, faith, beliefs ideals, morals and the philosophy of life which developed in our social life. Psychologically, personality is the total of the biological and sociological forces of individuals. In simple words it can be regarded as the result or outcome of adjustment of person's biological and sociological life self.

To make the concept clearer, here are some definitions :

According to **Kimbal Young**, "Personality refers to more or less organized body of ideas, aptitudes, traits, values and habits which an individual has built into roles and status for doing with others and with himself."

According to **Gordon Allport**, "Personality is the dynamic organization within the individual of these psycho-physical systems that determine his unique adjustment to his environment."

According to **Gestalt Psychologists**, "Personality is a pattern or configuration produced by integrated functioning of all the traits and characteristics of an individual."

Nature of Personality:

The above concepts and definitions will help you to derive some basic characteristics of **personality**. The comprehensive nature of Personality may be identified with the following constituent characteristics:-

- Personality is the result of an adjustment of individual with the psycho-biological forces in his/her environment.
- It finds expression in and through society. People in society describe a man's personality.

- Personality indicates self-consciousness of one's psycho-physical qualities.
- The personality of a person reveals the social and cultural qualities to which he or she belongs.
- Personality finds expression through external behavior and reaction of a person in his/her environment.

STOP TO CONSIDER :

What have you learned from the above discussion?

- Etymologically, the term 'Personality' originates from the Latin word 'Persona' refers to the mask used by the Greek actors.
- Psychologically, personality may be considered as the integrated and dynamics organization of physical, mental, emotional, social and moral qualities of an individual.
- According to **Gestalt Psychologists**, "Personality is a pattern or configuration produces by integrated functioning of all the traits and characteristics of an individual."

CHECK YOUR PROGRESS

Q.1. Define Personality. Discuss its important features.

5.4 Development:

As a student of education, while dealing with psychology, you must have an idea about **development**. It is one of the most significant concepts and areas of the study of psychology. It refers to interaction of a person with his/her environment to increase the **strength, degree of differentiation** and the **organization** of personality.

Development refers to those effects upon the person's cognitive and emotional systems which strengthen one or more abilities of the person in the designated manner. Thus, development constitutes the qualitative changes in an organism. Environment has very important role to play in the process of development.

Three Concepts of Development:

1. Development is maturation

According to Arnold Goessel (Year), the role of physical changes is very important in development. The development from infancy to adolescence is governed by physical changes. Only when physical growth of the particular stage attains maturity is development in that stage possible. For example, a growing nervous system changes systematically and automatically and this results in predictable changes in bones and muscles. Thus major changes in the organism are based on maturation.

2. Development is learning

According to Baer, “Development is the behavioural changes which require programming and programming requires time but not enough of it to call it age”. Programming here means the sequence of learning which may happen naturally or is arranged in the life of an individual with the help of the environment. Thus, in to his definition, development is both genetic and environmental. Whatever we learn in the process of our life is related to own development.

3. Development is the synthesis of abilities

According to Jean Piaget, there are four basic elements that take part in the process of development, and development is the result of synthesis of all these elements. There are given below-

- I. Maturation – An automatic and innate process
- II. Social transmission – Learning through language, schooling or training given by parent.
- III. Experience – Obtained from the outer environment informally
- IV. Equilibration – Whatever is learnt or gained internally or externally is equilibrated here.

CHECK YOUR PROGRESS:

Q.2. How does the development process take place in an individual?

Principles of Development

The principles of development will make the idea of development more clear to you. The principles of development are—

- Development is a product of interaction between heredity and environment.
- Development follows on orderly sequence.
- Development is a continuous process.
- Development goes from bilateral to unilateral trend.
- Development is an individualized process.
- Development has both positive and negative deminsions.
- Development proceeds from general to specific.
- The rate of development differs with sex.

STOP TO CONSIDER :

Development is-

- Interaction of a person with his/her environment surroundings.
- According to Jean Piaget, there are four basic elements that take part in the process of development-Maturation, Social transmission, Experience and Equilibration.

5.5: Genetic and Cultural Factors of Personality:

So far, we have discussed the concept of personality and its characteristic features. The study of personality is incomplete unless discuss its factors. The two most important factors of personality that we will discuss are **Genetic and Cultural**.

Genetic Factor:

This refers to the hereditary factors of personality. This is biological in nature. All that which we inherit from our parents, grandparents, great grandparents and so on is called heredity. Heredity is of two types - biological heredity and social heredity. Biological heredity is that which a person inherits from his/her forefathers in the forms of chromosomes and genes. Social heredity means all that one generation receives from the preceding generation in the form of social traditions, customs and skills.

For example - persons belonging to a particular race may generally be muscular with strong and wide bones, or the son of a carpenter is also likely to be an expert carpenter. It is an example of social heredity.

Galton was the first psychologist who conducted studies on the nature and extent of genetic influence in man. He studied 997 eminent British people and found that there were 322 people out of 997 who were also distinguished. He also studied 997 average people and found that only one of them was eminent. He thus concluded that eminent men were found in families which have already one eminent member at least. He also found that decreased instances of eminence were seen when eminent people decreased their relationship with eminent persons. According to him eminence is inherited from generation to generation. Thus, heredity or genetic factor is one of the contributing factors of personality.

Cultural Factor:

Every society is identified by its cultural heritage which is transmitted from one generation to the next. The transmission of culture may also be termed as social heredity. The personality of an individual is gradually shaped by the culture he/she is born in. **Tyler** defined culture as that complex whole which includes knowledge, beliefs, morals, laws, customs and many other capabilities (skills) and habits acquired by people as members of society.

Thus culture refers to the life activities of a society. Whatever a person learns from society through the process of interaction is called culture. In other words, what people think, feel and do constitute the culture of a society. Biological inheritance is more or less the same all over the world but whatever differences are seen in the process of growth and development of personality among individuals are because of the differences of social inheritance (culture). We can easily identify people reared in different cultures by the personality patterns they possess. English, Africans, Arabs and Indians can be identified by their cultural background more than by their biological heredity.

No single culture usually dominates in big countries. Sub cultures within a culture are also seen in societies, which sometimes brings about social conflicts. This conflict distorts the personality of individuals as well. Cultures and sub cultures are silent educators and they mould the personality of individuals silently.

CHECK YOUR PROGRESS:

Q.3. What are the cultural factors contributing to a person's personality?

STOP TO CONSIDER :

- There are numbers of factors of personality. The two important most factors are **Genetic and Cultural**.
- **Genetic Factors** refers to the hereditary factors of personality.
- This is biological in nature. All that which we inherit from our parents, grandparents, great grandparents and so on is called heredity. It is of two types-biological heredity and social heredity.
- Biological inheritance is more or less the same all over the world but whatever differences are seen in the process of growth and development of personality among individuals are because of the differences of social inheritance. This is the **cultural** factor of personality.

5.6: Theories of Personality

In the discussion of personality, there are two major theories of personality - type and Trait theory.

Type theory of Personality:

The concept of personality has been explained in terms of the study of its types in this theory. Studies have been made on man's physical shape and size and nature of physical reaction and behavior in the environment. Type theory also includes the study of people's feeling and emotions, temperament, instincts, needs, drives, urges and tendencies and the nature of adjustment in the situation. It also takes into account the unconscious mind and its elements that constitute external reactions and behaviors of people that give vent to inner feelings and experience in the situation. This theory throws light on people's nature of behavior, which is helpful in our personal and social life.

Trait Theory of Personality

Study of the traits in psychology is more significant than study of type of personality. Traits are typical qualities or characteristics of behavior that find expression in a person and are observed by people in society. Traits are narrow in concept ualihazon than types. They are more or less permanent characteristics of individual behavior that are reflected through people's feelings, thought and action. Traits of a person are reflected through their feeling, thought and action. Traits of a person are observed by people in society in various psycho-social situations. A man, for example, is found to be exceptionally interested in social activity. He attends social functions and derives satisfaction for himself, disregarding his own personal comfort and gain. In such a case, we describe him as sociable. Thus 'sociability is a trait of personality.

Traits are therefore the typical characteristics or qualities & behavior as observed by people in society. It is on the basic of these traits that a person and their personality may be known. Classification or typing of personality and the measurement of personality may also be made on the basic of traits.

In order to identify the true nature of personality traits, the following points, need to be kept in mind:

- Traits are the result of feelings, thoughts and experiences of an individual in his or her own mind. It is the expression and experience of a person in his or her psycho-social situation.
- Traits are more or less stable qualities of individuals. Habitual repetition of individual traits under similar circumstance may become their stable characteristics.
- Traits are generally influenced by social rules, customs and laws and the cultural situations of a group to which the individual belongs. They are judged in terms of acceptable social norms.
- Traits are generally evaluated by people in society. Traits can, therefore, be understood in terms of social norms, social judgment and evaluation

- Measurement of personality means observation and objective assessment of the traits of an individual.
- Every trait has its opposite quality or characteristic for our consideration. It is through this opposite sense that a particular trait may appear to be more meaningful to us.

Here in this unit, some specific theories of personality are discussed. These are-

Freud's Type Theory:

Sigmund Freud classified human personalities into three categories on the basis of fixation to sexual energy at a particular stage of sex development. Thus, personalities are of three types according to him.

1. Oral Erratic

According to him sex in infancy is located in the mouth. There is a membrane in the mouth which, when initiated, gives pleasure to the child. Sexual gratification at this stage is acquired through mouth related activities such as sucking of milk from the breast of the mother or putting any object in the mouth. If fixation to sexual energy takes place at this stage, it will result in two types of personalities at the later stage of life:

Passive: The person will be dependent, optimistic and immature in his or her thinking. He or she will always behave like a child.

Sadistic: The person will be aggressive, suspicious and pessimistic. He or she is likely to deal the others high handedly.

- 2. Anal** At this stage a child obtains sexual gratification through anus related activities. Here the child enjoys delectation or touching the anus. If fixation of sexual energy takes place at this stage, the child will become obstinate, miserly or orderly in the later stage of his life.
- 3. Phallic** This is the child's third stage of sexual development of a child and it starts with the sign of puberty in him or her. If fixation of sexual energy takes place at this stage, the child will become attention-seeking in the later stage of his or her life. He or she will try to draw the attention of others by making himself or herself attractive. He or she will be the extreme lover of beauty in whatever form it is found.

Adler's Individual Theory:

Adler was an associate of Freud but he disagreed with Freud on certain issues and parted with him. He was the first psychologist who de-emphasized the concept of inborn instincts and gave importance to social factors in the development of personality. According to him will power is the central force behind all the behaviors of the individual.

Adler said that an individual makes three types of adjustments in his or her life, adjustment to the society, to his or her vocation and to his or her love. These adjustments depend on how an individual was enriched by experiences in his or her childhood.

The second thing is that the child wants to grow, to dominate and to be superior only because he or she is born helpless. The poor run after wealth or the weak follow the strong only because deprivation creates the need. Thus, everyone is pushed by the urge to develop to higher levels of life. According to Adler, there are several other determinants of personality. These are-

- I. **Fictional finalism-** Fictional finalism means that a person's action is governed by fictional ideas. These ideas do not necessarily conform to reality. When such fiction is found in a person, he or she is expected to cope with life more successfully. Thus, future goals of a person affect his or her present behavior and he or she can be motivated by these goals.
- II. **Style of life-** This is a unique quality of personality that differentiates a person from others. Style of life includes everything related to living such as goals of life, tendency to strive for superiority etc. There are many ways to reach goals of life. For example, some persons seek these goals through social relations, other persons through educational achievement and many other people through business or politics. These different ways represent a person's style of living and hence his or her personality.
- III. **Social interest-** Social interests determine the social relations of an individual. Social relations include co-operation, sympathy and interpersonal identification with a group. Social relations of human beings mean to help society attain perfection. Adler says that social interest is a latent and inborn characteristic of a person. This innate capacity will

not develop without guidance and experience in social contexts. These healthy social interests are subordinated or suppressed by selfish power goals in neurotic people.

STOP TO CONSIDER :

Freud's Type Theory:

- Sigmund Freud has classified human personalities into three categories on the basis of fixation to sexual energy at a particular stage of sex development.
 - Personalities are of three types according to him, **Oral Erratic ,Anal and Phallic**
- #### **Adler's Individual Theory:**
- Adler says that an individual makes three types of adjustments in his or her life: adjustment to society, to his vocation and to his love.
 - According to Adler, there are several other determinants of personality, -Fictional finalism, Style of life and Social interest

Carl Roger's Self theory:

Roger believed that behavior is not based on needs or drives but on a higher driving force within the individual which impels him or her to behave in different ways. There are two basic concepts underlying his theory:

- I. **Organism-** Organism is the centre of all experiences, which take place within the individual at a particular time. The totality of experiences is called a phenomenal field. It develops a person's unique outlook.
- II. **Self-** It is a part of the phenomenal field and is related to 'I' or 'me'. There is an ideal self also which determines what we would like to be. Each of us has a potential for self-actualization, but many of us are not aware of it. So we must become aware of it first.

The experiencing individual reacts to his or her perceptual field as an organized whole when he or she seeks to actualize, maintain and enhance himself or herself. Thus behavior is a goal directed effort of the organism to satisfy needs through experiences in the field.

According to Roger, the organism continuously strives to develop and expand its self. And in the process he or she becomes aware of his

power of self-actualization. This self is developed in the process of interpersonal and social experiences in the environment. In order to become aware of the potential of self-actualization, four conditions are necessary:

- The person must be respected and loved by others.
- The person must respect himself or herself and his or her abilities to achieve his or her goals.
- The choices available to the individual must clearly be perceived. If the person is unaware of the choices, the growth of self will be hindered.
- The person must have a clear description and full understanding of choices.

Raymond B. Cattell's Trait Theory

Cattell defined traits thus: "Traits are the structure of personality inferred from behavior in different situations."

Cattell classified traits into four categories-

- i) **Common Traits-** These traits such as honesty, cooperation, aggression etc. are widely found among all individuals
- ii) **Unique Traits-** There are temperamental traits possessed by a particular person, such as energy, height, weight etc.
- iii) **Surface Traits-** These are common traits possessed by people and exhibited by them in normal situations. i.e. curiosity, honesty etc.
- iv) **Source Traits-** These traits are not directly observable. They are rather inferred from behavior, such as dominance, leadership, obedience etc.

Cattell differs from other trait theorists in the sense that he was the first man to recognize both the hereditary and environmental factors in determining the traits of a person.

STOP TO CONSIDER :

Carl Roger's Self theory:

- Roger believed that behavior is not based on needs or drives but on a higher driving force within the individual which impels him or her to behave in different way.

- There are two basic concepts underlying his theory-**Organism and Self.**

Raymond B. Cattell's Trait Theory:

- Cattell defined traits thus : “Traits are the structure of personality inferred from behavior in different situations.”
- Cattell classified traits into four categories-**Common Traits, Unique Traits, Surface Traits and Source Traits.**

5.7 Adjustment Mechanism and Mental Hygiene:

In our day to day life, we make use of some mechanism for better adjustment in our life. But what are they, according psychology? Let's know about these. The concept of adjustment was first used by Darwin in his theory of natural selection. At that time the words ‘adaptation to environment’ was used instead of ‘adjustment’.

A human being has the highest capacity to adapt to new situations among all living beings. In this process of adaptation a person uses his or her maximum capacity to fight against the adversaries in environmental situations. When a person becomes victorious, he or she is said to have been adapted to the environment.

An individual uses a number of methods and procedures to defend or escape from conflicts, frustration and depression, in order to better adjust in the society. They are known as defense or adjustment mechanisms. The basic characteristics of these mechanisms are -

- **Overcoming blocks-** Through this mechanism, the individual puts away the impediments that are there in the way of his or her success in future. If these blocks are not removed, he or she will not be able to make efforts in future.
- **Reaching goals-** This mechanism helps the individual to reach the ultimate goal of his or her life. i.e. mental balance through occupational adaptation.
- **Satisfying motives-** Frustrations which are caused by failure or deprivation are reduced to a minimum by adopting those mechanisms. They work as alternate source of satisfying motives.
- **Relieving tensions-** This mechanism brings the individual into another world which is full of pleasure and thus his or her tension is released.

- **Maintaining equilibrium-** Maladjustment imbalances the mind for a brief period of time. This mind is again brought to the equilibrium point through this mechanism.

It is important to mention here that the defense mechanism is a sort of self deception. We deny and disguise the real cause of our behavior in order to maintain the balance of our personality. Despite this fact, adopting such a mechanism is necessary. Otherwise a person will remain maladjusted for a very long period of time.

Some Adjustment Mechanisms:

Some common mechanisms that an individual can adopt for the purpose of adjustment are given below:

1. Simple denial

The simplest way to maintain the balance of the personality is to deny the fact outright so that conflict cannot have a place in the mind. For example, when children are called by their parents and they do not heed to the call deliberately, but later deny that they had heard it for fear of punishment from the parents, it is called simple denial.

2. Aggression

Aggression is an another adjustment mechanism used as an attempt to hurt or destroy either the source of frustration or any other thing or person itself, if it is not possible to destroy the source. For example, if a candidate has been denied admission by the principal of a school as a matter of prejudice and the candidate sets the building of the school on fire, it is aggression. Aggression is always shown at the call of deep anger and frustration.

3. Compensation

It is a general tendency that if a person is deficient in one area, it becomes the source of frustration for him or her and then he or she might make up for the deficiency by excelling in other areas. This technique is especially useful for those who have some sort of handicap. For example, if due to learning disabilities, the child is performing very poorly in academics, then he or she may work hard to increase his or her efficiency in the playground.

4. Sublimation

This refers to making the desires sleep. Through this mechanism intolerable impulses and drives are directed to socially accepted channels. If a person fails in his or her love, he or she converts his or her frustration into the composition of poetry and songs. This is sublimation. It is actually making the mind understand “not to run after the thing that is beyond reach.” We see a lot of people kissing small children in order to control their sexual urges. Thus, socially unacceptable behavior is converted into acceptable one and the personality comes into balance.

5. Identification

This method operates outside and beyond conscious awareness. Through this, an individual makes himself or herself like someone whom they has identified in any particular field. The elements identified for the purpose are thoughts, behaviour, beliefs, tasks and character. For example, adolescents identify themselves with film heros, heroines, political leaders and scientists and try hard to acquire the characteristics of their identified personalities. Identification process may be both conscious and unconscious. With the help of this mechanism, the person removes his or her anxiety by doing well in the direction of his or her efforts and leaving everything else aside.

6. Projection

In the words of Freud, projection is a process by which we describe to the external world the rejected impulses of the ‘Id’. We defend ourselves against our repressed guilt feelings by projecting them into other things and people. In the classroom, children who do poorly are often critical of the teacher or other pupils. Through this technique, they try to blame others for the loss and take credit for the good. Here the individual always projects the situations in his or her own favor. For example, a person working in a group takes the full credit of what the group did well, or one player of the team takes sole credit for winning the game.

7. Rationalization

It is a mechanism by which an individual justifies his or her beliefs, thinking or action by giving reasons other than those which are real

and motivating for the belief or action. By doing so, the individual minimizes his or her frustration. The reason of failure given by him or her is so sound that his or her mind fully accepts it. But it does not mean that others will also believe in those reasons. For example, if a child fails in the annual examination and takes no responsibility of failure but blames either the paper setter or the examiner who evaluated the answer script or his or her own health that was not good during examination period, it is a case of rationalization

8. Regression

It is an unconscious back tracking either in memory or in behavior which might have been successful in the past. An adult behaving or crying like a child in certain situations is an example of regression. Old people who always talk of their achievement in youth show the mechanism of regression.

Some sort of regression is normal for maintaining mental health. If a teacher adopts this mechanism, he or she can come to the state of childhood mentally and enjoy interacting with his or her students. In this case, his or her age will not create a problem. By adopting the method the teacher will be able to establish full rapport with his or her students. On the other hand, regression can pose a serious problem if the person habitually uses this technique in all circumstances. It is actually a sign of mental ill health.

9. Repression

Repression is an attempt by the individual to push those experiences and thoughts into the unconsciousness which are in conflict with social norms or moral standards and which are painful to contemplate. The forces of repression exist within an individual. For example, a person was beaten by his neighbors in the presence of many people. Due to this he felt sad for several days. By the mechanism of repression however, he tried to forget these painful experiences gradually, and he was again seen in the market talking to people.

10 Day dreaming (Fantasy)

This refers to roaming in imaginary world which is full of pleasure and satisfying stimuli for the individual. Hungry men dream of food,

unsuccessful men dream of success, poor people dream of richness through an unknown source. Day dreaming reduces tension immediately. The introverted person generally takes recourse to this type of adjustment. Although too much of day dreaming makes a person unrealistic and unable to avail an opportunity even it is presented itself.

CHECK YOUR PROGRESS:

Q.4.What are the most common adjustment mechanisms used by a person if you consider this in context of your personal life?

STOP TO CONSIDER :

- The concept of adjustment was first used by Darwin in his theory of natural selection.
- An individual uses a number of methods and procedures to defend or escape from conflicts, frustration and depression, in order to better adjust in society. These are known as defense or adjustment mechanism.
- The various adjustment mechanisms are simple denial, aggression, compensation, sublimation, identification, regression, projection, rationalization repression and fantasy.

Mental Hygiene:

One other important area of study of psychology is mental hygiene. It is a science which deals with the process of attaining mental health and preventing mental illness. The process of mental hygiene is a lifelong process beginning with the time of birth and continuing till death. The difference between mental hygiene and mental health is that the former is a means and the latter is the end.

The mental hygiene movement started in the first decade of the 20th century with the publication of a book “A mind that found itself” by Clifford Beers in 1908. Beers was a graduate of Yale University, who became mentally disturbed due to unnecessary stress and strain on his mind. Being frustrated with his life he tried to commit suicide but he was rescued and treated by

doctors (psychiatrists). After recovery, he wrote about his experiences and the types of treatment that he received. His book proved a revolution for the concept of mental ill health and created awareness among the general public about mental hygiene. Mental hygiene has these objectives or significance:

1. Realization of Potentialities- After realizing his or her strengths and weakness, a person is given full opportunity to develop his or her potentialities with maximum.

2. Happiness- The person is given full opportunity to develop positive attitude towards life in the context of the society and nation even when it is always full of problems. This freedom gives him or her happiness.

3. Harmonious Existence- The physical, mental and spiritual capacities of the individual are developed in a harmonious manner and harmony of the individual with the environment is also achieved.

4. Effective Existence- Mental hygiene enables the individual to pursue his or her interests effectively to exist happily in society.

STOP TO CONSIDER :

- Mental hygiene is a science which deals with the process of attaining mental health and preventing mental illness.
- The process of mental hygiene is a lifelong process beginning with the time of birth and continuing till death.

CHECK YOUR PROGRESS:

Q.5. How does the study of mental hygiene help the teacher?

5.7 Summing Up:

In this unit, we have discussed the concept of personality and the various theories of personality. The concepts of development and adjustment mechanism have also been discussed. The unit can be summed up as follows:

- Personality may be considered as the integrated and dynamic organization of physical, mental, emotional, social and moral qualities of an individual.

- Development refers to those effects upon the person's cognitive and emotional systems which strengthen one or more abilities of the person in the designed manner.
 - There are numbers of factors of personality. The two important most factors are **Genetic and Cultural**.
 - **Genetic Factor** refers to the hereditary factors of personality. This is biological in nature. All that which we inherit from our parents, grandparents, great grandparents and so on is called heredity. It is of two types-biological heredity and social heredity.
- Biological inheritance is more or less the same all over the world but whatever differences are seen in the process of growth and development of personality among individuals it is because of the differences of social inheritance. This is the **cultural** factor of personality.
- The various theories developed by **Fraed**, Roger, Adler and Cattell have also been discussed in this unit.
- The concept of adjustment was first used by Darwin in his theory of natural selection.
- An individual uses a number of methods and procedures to defend or escape from conflicts, frustration and depression, in order to better adjust in society. These are known as defense or adjustment mechanism.
- The various adjustment mechanisms are- simple denial, aggression, compensation, sublimation, identification, regression, projection, rationalization etc.
- Mental hygiene is a science which deals with the process of attaining mental health and preventing mental illness.
- The process of mental hygiene is a lifelong process beginning with the time of birth and continuing till death.

5.8 References and Suggested Books:

1. Aggarwal .J.C: Psychological, Philosophical and Sociological Foundation of Education.

2. Bhatia B.D and Shukia ,Safiya : Modern Educational Psychology.
3. Mangal S.K: Advanced Educational Psychology.
4. Skinner: Educational Psychology.
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