LOVELY PROFESSIONAL UNIVERSITY

DEVELOPMENT OF LEARNER AND TEACHING LEARNING PROCESS I

Edited By

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SYLLABUS

Development of Learner and Teaching Learning Process - I

Sr. No.	Content
1	Psychology: Meaning, nature, branches and schools of Psychology; Educational Psychology: Meaning, nature and scope; Methods of Educational Psychology: Observation, Experimental, Case Study.
2	Growth and development –Meaning and Principles; Stage specific development: Infancy, childhood and Adolescence; Learning: Meaning, Nature and Process; Nature of teaching and learning, factors affecting teaching-learning process
3	Theories of learning: Thorndike's theory of learning and its educational implications, Pavlov's classical conditioning and its educational implications, Skinner's operant conditioning theory and its educational implications, Insightful learning theory and its educational implications.
4	Intelligence: Meaning, nature and types, Measurement of Intelligence, Theories of Intelligence: Unifactor, Two factor, multifactor theory, SOI and their educational implications
5	Transfer of learning: meaning, types and strategies to achieve maximum positive transfer of Learning; Motivation: Meaning, types and techniques of motivating learner.

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Unit-1: Nature, Branches and Schools of Psychology

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Objectives

After going through this unit, the students will be able to—

- Understand the meaning, scope and methods of Psychology.
- Understand Psychology is a Science.
- Collect the information of various branches of Psychology.

Introduction

Psychology is the study of human behavior. The basis of the study of Psychology is the micro study of the inner mental incidents that takes place within a human mind. The human behavior is both natural and acquired thus the two are studied in the scientific ways within the fold of Psychology. Animal behavior is studied as well so that a comparison can be drawn between the human and the animal behavior and the inferences drawn are conclusive. Various fields and techniques have been developed to study human behavior.

1.1 Meaning of Psychology

The word Psychology has been derived from two Greek words—'Psyche' which means soul and 'logos' which means study. According to the literal meaning of Psychology is a subject that studies

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about the soul. The ancient famous philosophers like Aristotle and Plato considered Psychology a subject that studies about the soul by keeping its literal meaning. The definition given by these ancient thinkers and philosophers is now considered obsolete as historical definition.

The philosophers of the 17th and 18th century like Leibnitz, Hobbes, Locke, Kant, Hume etc. are worth mentioning. These philosophers said that the word 'Psyche' is mind and the object of study of Psychology is 'Mind'. Therefore, Psychology was accepted as the study of mental science in other words study of mind. Till 1870 the definition given by these philosophers was accepted and psychology was studied as a branch of Philosophy and the object of study was the mind.

There were primarily two defects found in the definition given by these Philosophers. First, 'Soul' and 'Mind'. Mind is an abstract object that can neither be seen nor heard. Therefore, the study through scientific techniques is not possible nor any kind of practical can be applied on it. Second, after accepting psychology as study of mind or soul its object remains unclear as these words are used in different meanings and it is difficult to say in which context it is used in Psychology.

As mentioned earlier psychology was a branch of philosophy. In 1879 Wilhelm Wundt set up a first laboratory of philosophy in the Lipzing University (later the name changed to Karl Marx University) in Germany. Gradually psychology came to be a different subject, different from Philosophy. As a result the subject matter of psychology ceased to be not mind or the soul but 'mental activities' or the Conscious Experience. The Psychologists who advocated this theory of psychology are called Structuralists. Wilhelm Wundt and Titchener are the standing pioneers of this theory. According to them Psychology is the study of the Conscious Experience and the Immediate Experience. Here the meaning of conscious experience or immediate experience is related to sensation, imagination, image, feeling and other mental activities. According to Wundt sensation was called as the objective element of conscious experience whereas feeling, the subjective element of conscious experience. But there were many defects found in this definition of structuralists. The major defect was described that, because the conscious experience cannot be studied through objective method, hence this definition of psychology is not able to explain the practical nature oof psychology. This definition only emphasizes on the study of conscious experience, however all experiences of human are not conscious but they are mainly conscious. So this definition does give a clear picture that psychology studies all the aspects of human mind or not.

Since there were many defects in the definition of structuralists so another definition of psychology was introduced by behaviourists, J. B. Watson is important among the behaviourists. They accepted psychology as positive science of behavior. This definition clarifies that conscious experience was diversified from the object of psychology and behavior replaced it, which was more objective because that can be seen and heard, Running, crying, smiling, thinking etc are the few main examples of behavior. In this definition, Psychology was accepted as positive science, because it studies all three aspects such as what, why, and how related to the behavior. In this definition the main defect was described that the behavior alone is meaningless. The fact is that the explanation of any kind of behavior is based on the basis of our own experiences then only we get the real meaning.

The meaning of Psychology introduced by the Modern Psychologists is seems to be the juncture of both the definitions mentioned above. Atkinson, Smith and Hilgard have said describing Psychology— "Psychology is the scientific study of behavior and mental process." This definition clarifies that Psychology is not only the study of behavior but also studies about those mental processes that cannot be seen but only assumed on the basis of the behavior. Morgan, King, Weisz and Schopler have also clarified that psychology is the science of study of human and animal behavior. They have further clarified that while calling Psychology a science of behavior, mind or internal mental events are not being differentiated but it is also included in the same. In the words of Morgan, King, Weisz and Scoplar – "When we define psychology as a science of behavior we do not differentiate mind we only say that whatever human does means his behavior is the avenue through which the study of internal mental event is been done."

Thus, we can say that in the modern era Psychology means a science in which both behavior and mental processes are studied.

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1.2 The Scope and Methods of Psychology

The Nature of Psychology

To understand the importance of the subject Psychology it is necessary to understand its nature. To understand the nature we have to find out that what is Psychology all about, what kind of science it is, its branches, what are its purposes and problems? What is human according to psychology and what is the contribution of psychology to the mankind? By studying these aspects the nature of psychology can be understood properly.

In the beginning for centuries Psychology was considered as a part of Philosophy. In the past fifty years psychologists introduced psychology as independent subject and gave it a nature of science. For this reason, Independent department of psychology have been segmented in various universities and is taught as an independent subject.

The nature of psychology that we have now was different in the beginning. It was considered as a science of soul initially. The purpose of this subject that time was investigation and thinking of soul. Thus, the psychology was related to spiritualism and was part of philosophy. Till sixteenth century psychology was considered as science of the soul. People could neither see the soul nor define it. Therefore, they became hesitant to accept it as science of soul. In order to bring out the change people started calling it 'Science of mind'. But the nature of mind is also not certain like soul and so could not be defined. That is why Psychology was not accepted as the science of mind and till now psychology could not get the place as Pure science.

After studying minutely psychologists observed the influence of consciousness on human behavior. Therefore, psychology was also accepted as science of consciousness, but few psychologists observed the behavior of human is not overpowered by consciousness always but sometimes unconsciousness takes place in his behavior. Thus psychology was accepted as the science of unconsciousness, but further this definition was not accepted by the people and nature of psychology kept on changing.

Now psychology is considered as the science of human and animal behavior. In psychology the goal is to study human behavior, but the basis of this study includes animal behavior too. Initially with the help of psychology the experimental study of animal behavior takes place and then the comparison between human and animal behavior brings success in the study of human. There are two kinds of human behavior, natural and acquired or learned. The study of both behaviors consists in modern Psychology. Thus the nature of psychology centralized on animal behavior instead of Spiritualism.

Did u know? Initially study of psychology was considered as a branch of philosophy. In 1879 William Wundt founded the very first laboratory of psychology in Lipzing University of Germany and with this step psychology gradually became separate from Philosophy.

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1.3 Psychology is a Science

Psychology is a science of the study of human and animal behavior. It is now considered as a complete science. As in pure science certain principles and rules are being set on the basis of experiments. Likewise in psychology too the principles and rules are determined related to behavior. The study of human behavior is being done on the basis of these rules and principles. These bases conclude the discovery of the reason of behavior and the possibilities of past and future of behavior are also discovered. Psychology is not the subject of mere thinking but these evidences are collected by using experimental kind of scientific techniques. Whatever responses human reflects towards its own environmental stimulates, psychology studies the same. Therefore, we can say—"Psychology is the science of human behavior or is the study of the science of its own reflection of response towards the stimulants based in the environment."

In fact, Psychology is the science of human behavior. It cannot be considered as material science. We can also call it Natural Science. There is a specific and fundamental difference between Psychology and material science. In material science we can keep control over the substance and attain success by doing desirable experiments in the laboratory. Opposite to that Psychology taken as subject is human instead of substance is not controllable as substance. Speed of mind is not controllable. One moment you think of New York and the next Peiking. If someone is busy hearing, something else instantly revolves around the thought of mind. Thus it is not possible to control the human mind like substance.

Notes When mental behavior is being studied or mental related rules and principles are determined on the basis of psychological experiments the inferences and the possibilities are necessarily be present. Thus psychology is not a pure science as of Physics or Chemistry.

Second, difference between psychology and material science is that Universality is found in material science, while individualness and individual differences are always there in psychology. For example, when a psychologist studies human behavior in the laboratory his subject would be the mind of a particular human through which his behavior would be conducted. If any other subject would be tested instead of this subject, the study being done at present and the study done earlier will not be same. Same way if a scientist does an experiment on an elephant, he will observe the reaction of all human towards the elephant and will set a general rule but when a psychologist will study the reaction of human towards elephant he has to study the reaction of every individual. On the basis of there reaction he cannot set a general rule.

Psychology accepts the three main techniquies of natural science – Observation, Experimentation, and Description. This is why it is called natural science. It uses the scientific techniques when it studies human or particular as subject. Psychology does not mere discuss about doctrine of ideology like philosophy ethics or aesthetics.

1.4 Branches of Psychology

Keeping objects in mind we can divide psychology into two main branches—

(1) Normal or General Psychology

(2) Abnormal Psychology

Normal or general psychology is the scientific study of entire behavior of human Human and animal. But abnormal psychology is the study of sick or abnormal state of human. These two branches are further divided into other sub-branches like general or normal psychology is divided into individual,

group, social, applied and other sub-branches. Abnormal psychology is divided into only two sub-branches individual and group. There are a few more sub-branches other than these sub-branches but that will not be described here.

Applied psychology influences only these scopes like educational psychology, Industrial Psychology, religious Psychology are the other sub-branches of applied psychology. Here we will study about educational psychology.

Schools of Psychology

Education and Psychology are closely realted, this topic has been enlightened in the previous chapters too. Through psychology we gain knowledge about human mind. Therefore, its relationship with education is mandatory. In the field of psychology, Psychologists have explained behavior through different means. Educational Psychology is applied branch of psychology. To study the behavior of people from different point of views and instructor needs to have a thorough knowledge of serial development of psychology. So that he brings change in the behavior of his pupil by influencing him in order to attain the desirable result. Difference in the ideas of psychologists in the development of psychology and the explanation of behavior resulted the origin of different schools. These schools explained not only the nature of behavior but also brought changes in the ideas of educational psychology, studies methods and scope.

Meaning of the Schools of Psychology—Here the meaning of school indicates towards the method of thinking and ideas of organized group of the people working in the field of psychology.

Psychologists **Woodworth** opinion is—"For us a 'School' is group of Psychologists who put forward a certain system of ideas designed to point the way that all must follow if Psychology is ever to be made a genuine productive service of both theoretical and practical value." —R.S. Woodworth

This statement clarifies that the school of psychology is such a group of people who do theoretical determination in the field of psychology and gives it a nature of scientific research.

In the 20th century psychologists experimented on the behavior of the living things and gave explanations through different means. That is why in psychology many schools of different ideas originated. These schools gave the solution of the same problem through different point of views. Each group has different scope and thinking system. In educational psychology co-ordination between different ideologies to solve the education related problem is not required. These schools can be helpful in the process of education by giving contribution in their own specific field.

The main motto of educational psychology is to help in the holistic development of a child. The different schools of psychology try to understand human mind through their own point of views. Each school has studied the mental problems minutely. In the field of education a few schools have researched on the subjects related to learning process, mental development, personality development etc. and influenced the process of education. A few important schools of psychology will be briefly described here. Schools that have directly influenced the field of education and educational psychology are as follows:

1. Structuralism
2. Functionalism
3. Behaviourism
4. Psychoanalysis
5. Gestalt School
6. Field Theory
7. Holistic Psychology
8. Purposivism

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1. Structuralism

In psychology **Wundt and Titchener** are the founders of the ideology of structuralism. In 1879 they founded the very first psychological laboratory in **Leipzig**, Germany. In this laboratory the experimental study started of mental structure and activities. According to the structuralists consciousness of human is the combination of different mental abilities and activities. In this ideology they have tried to explain the nature of the structure of mind, consciousness and experience. School of structuralism is such a thinking system of psychology whose subject scope and objective are the nature of the conscious experience of a living thing. It's main motto is to study the conscious experience through scientific methods. Psychology surveys the internal experiences. Due to this idea a few psychologists have called this school inter philosophical. This is based on the method of internal philosophy. Through this method the different aspects and experiences of consciousness can be studied properly.

Characteristics of School of Structuralism

1. They consider nervous system the basis of experience that helps to gain experience. According to Titchner the unit of the human experiences is mental element.Experience is the conscious internal structure of a human.
2. In this the information of mind and consciousness is gained through disintegration. The three element of consciousness are—**sense, talent** and **feeling**. Sense is related to tangibility, talent is related to ideas, and feeling is related to emotions.
3. Mind and body both have independent existence and they collectively make arrangements to mental process happen.

Contribution of Structuralism in the Field of Education—This ideology has not only influenced psychology but education too.

1. This ideology considered education as mental action and growth of experiences as motto of education.
2. They emphasized on scientific study in the field of education and educational psychology.
3. Emphasized on the serial inspection of the nature and structure of mental actions.
4. This ideology has historical importance of the development of psychology through scientific method.

Limitations of Structuralism—

1. Because of accepting the method of inter philosophy this school has worked in a limited field of psychology.
2. They did not work in the direction of entire mind.
3. They did not pay attention towards the problems related to the subjects, Motivation and Personality.

This school was badly critized in the beginning of 20th century. William James was the main critique. According to his view it is useless to analyze or study the elements of consciousness. We should rather concentrate on how does consciousness effect the various parts of our body. It resulted the origin of a new ideology that is called Fuctionalism.

2. Functionalism

This ideology was developed in America (In 1842–1910). It was developed as a reaction of school of structuralism. This ideology is influenced by Durven's theory of development. John D. V. and Ronelds Angel gave functionalism a true nature. Its philosophical background is Pragmaticism. Why? and What? Are the basis of this sect, according to **Woodworth—**"A Psychology that gives a correct and arranged answer to the question, what humans do? And also the further questions how do they

do that? And why do they do? Is called the school of functionalism. Due to functionalism, knowing, willing and feeling were incorporated in psychology. This ideology emphasizes on the motion of the strength of mind.

Functionalism was embraced by different psychologists of various countries. Its main three schools are as follows:

Chicago Community— In this John D.V., James Roneld Angel and Harberker are worth mentioning. John D.V. has specially emphasized on the utility of mind and brain the field of psychology, they enlightened that how the process of thinking works to solve the problem. **John D.V.** has emphasized in one of his write-ups, "The reflex is concept of psychology", that mental function is a continuous process. It keeps on happening without the break of a moment. He discovered the relation between action and excitement. Human's entire mental work has some motive or purpose. He did not accept that mind and consciousness is the combination mental elements like structuralism, but emphasized of the functions of the mental elements. He has emphasized on mental function.

James Roneld Angel— He has given a cleared theory of functionalism. According to him where structuralism is related to element or substance, functionalism is related to the function or process. According to this he emphasizes on the information of nature of mental process and how does it work. Mental functions are edited according to the circumstances. Mind and body collectively work and help the individual to cooperate with his environment. All mental activities or functions are based on the combination of the collective effort of mind and body. Functionalism does not accept mind and body as two different things. **Harvekar** has called the psychology the science of mental activites. The subjects of psychology of functionalism are why? and How?

Colombia Community— He founder of the school were **James Kettle, Edward Thirndike and Robert Woodworth** of university of Colombia. Kettle worked on association, tangible knowledge and mental physics. Thirndike worked on wisdom and learning process. **Robert Woodworth** earned name by writing the book "Contemporary schools of Psychology". He has also written a book on 'Experimental Psychology' on the basis of various experiments he did. Due to emphasize on co-operation in functionalism dynamic psychology developed, he gave importance to motivation in behavior. Functionalism studied mind and behavior of human and animal. This resulted the origin of behaviorism.

Contribution of Functionalism in the field of Education— In the field of education contributions of this school are as follows—

1. This school emphasized on environment and co-operation in learning process.
2. Followers of this school did lot of research on individual difference, learning, wisdom, co-operation, examination and evaluation that influenced education.
3. This ideology considered a child important in the process of education and contributed in the development of child psychology.
4. They emphasized to understand on the needs of a child on different levels of age during the process of education.
5. They discovered the theory of Utility. They considered only those subjects important in syllabus that is useful for man and society.
6. They emphasized on the collective activeness of mind and body. According to their idea mind without body and body without mind are incomplete. Mind and body worked together. That is why they emphasized on the following on three rules as study techniques.

(a) **Physical Rule—** In this they have tried to study the physical base of every action.

(b) **Study Technique in Different Situations—** In this living is observed in different situations.

(c) **IntrospectionTechnique.**

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3. Behaviourism

In the beginning of 20th centaury behaviorism was founded due to the criticism of structuralism and functionalism. Before this the emphasis was on the study of the element of consciousness. But a few psychologists considered it useless and said that the study that tells us about the effect of consciousness on our body is useful. Therefore the work of consciousness was more emphasized instead of its construction. But after sometime the technique inter philosophical method that studied consciousness was badly criticized. **William James** was the main critique among on the critique. Father of behaviorism was J. B. Watson. The object of behaviorism is to study behavior. Watson did not accept consciousness by considering it unclear. According to him to understand a living thing, it is important to observe and understand works of his body. Examination of entire personality of human happens through behavior and activity. Thus only study of consciousness is not useful but instead of emotions, feeling, talent, and memories. Attention should be paid towards his efforts and behavior that is tangible. These efforts and behavior are both natural and acquired that are studied by the psychologists. School of behaviorism is a group of those psychologists who study both natural and acquired behavior of a living that is tangible. Max Mayor, **P. Bis, Hull and Tallman and B. F. Skinner** are among the main behaviorists.

In the year of 1912–14 when the movement of behaviourism was going on in America the Pscyhologists **Weshref** and **Pavlov** (1857–1936) were experimenting on associated reflex action, conditioned reflex action and motor reflexes. They experimented both on human and animal.

According to the view of Behaviorism a living thing responses due to the incitement present in the atmosphere. This discourse thought over the action of the living thing and studied the actions of muscles and glands. In this the" Theory of Stinulu-Response" has been given an important place, resulted human behaves in order to cope up or become friendly with circumstances and atmosphere.

In the origin of behaviourism Sir Thorndike's contribution in the field of animal psychology is worthwhile. He did many experiments on fish, cats and hen. These experiments proved that because of lack of wisdom they learn many things through trial and error. An animal attains success to complete the work by trying again and again. These experiments are fully described in the chapter learning.

Contribution of Behaviourism in Education—

(1) Experiments done by behavioristic psychologists on animals demonstrated the rules and theories of learning. Method of trial and error was implemented in learning.

(2) Study of child psychology got encouragement.

(3) Effect of atmosphere was emphasized in the development and improvement of humen.

(4) Psychologists belong to the school of behaviourism enlightened methods of learning, rules and theories of learning, sensational behavior and habits related to root instinct that causes the progress of educational psychology.

(5) Education is related to human behaviour. Behaviour has both personal and social aspects. This sect believes that the entire human behavior is fulfilled because of a continuous interaction of human behavior with atmosphere.

(6) "Pre decided learning" developed as an educative method.

(7) This school emphasized on inspection and measurement.

(8) Behaviourists made the study of child personality easy and objective. After studying child's behavior in different circumstances and atmosphere, they introduced many useful methods to evaluate personality.

(9) Theory of Stinilu –Response resulted the emphasis on sense teaching in child education system.

4. Psychoanalysis

Sigmund Freud (1856–1939) of Vienna was one of the main founders of Psychoanalysis. This school mainly studies the trials of unknown mind. **Dr. Freud** used the method Hypnotism to cure the

disorders like unconsciousness and Ligament. In this technique he used to ask questions from patients in the state of unconsciousness. Due to hypnotism the patient used to pour out all his emotional problems because of the unconsciousness that he was not able to express in conscious state due to shame, fright and hesitation. Freud used to observe the reason of decease through what the patient used to say in the state of hypnotism and unconsciousness. But this method was not successful on a few patients. For the treatment of these kinds of patients Freud used the method of 'Independent association'. Freud discovered many techniques to analyze human mind. After the deep study of human mind, a theory was designed on the basis of collected data, this theory is called Psychoanalysis. In this context **Earnest Jones** has said—The word Psychoanalysis is used to describe these three things—

(1) Psychoanalysis indicates towards a special medical technique that was used by Prof. Freud of Vienna to cure the patients of special group of Ligament. This way for the very first time it was used as controlled meaning.

(2) It indicates towards a special sub technique of discovery of deep levels of mind.

(3) In the end this word is also used for one of the fields of knowledge that is gained through this method in this mean in applied way it is 'The Science of Subconscious Mind'. Thus we can say that the school of psychoanalysis studies the extra ordinary behavior of human with the characteristics of subconscious mind. Freud, Adler and Yug are three main psychologists of this school who have given the different explanation of subconscious mind. The views of these respected personalities can be described in short—

Task Till what extent you agree with the method of Hypnotism used by Freud to cure the Mental patient? Before a short span of time a program (Raaz Pichhle Janam Ka) was Broadcasted by NDTV Imagine, Do you find any similarity in that program and the theory of Freud?

Freud—Freud is the first psychologist of psychoanalysis school. He has defined three levels of mind-conscious, sub-conscious and unconscious. Conscious mind is smaller than the unknown or unconscious mind. Human behavior is widely controlled by the unconscious mind. Conscious mind is always influenced by unconscious mind. Emotion and anger kind of unsatisfied feelings are always there in unconscious mind, Freud has compared mind with an ice berg floating in the ocean whose most of the part is under the surface of water. Thus, conscious mind is very small while unconscious mind is more powerful. But both the parts of mind are active. The unsatisfied emotions and desires of human get collected in the unknown conscious that are not dead. Human stops these feelings and emotions to come in the conscious mind due to social and other reasons. Thus a continuous conflict between conscious and unconscious mind goes on. These depressed feelings when are not expressed or illuminated, they take the shape of an entanglement that are called emotional glands. These glands influence personality. **Freud** has defined three powers that rule over mind—**Id, Ego and Super-Ego**. Here is the brief description of it—

Id—It is related to heredity. It is full of human's inherit qualities. The thoughts and consciousness of object is not his own but this is the source of his mental power. This is the base of neglected desires and propensity. It is not under the control of brain. Its nature is unconscious and not related to the reality. It is related to cupid tendency that is called 'Libido' by Freud.

Ego—This is the part of id that develops in the external environment. It is related to the reality of environment. It is conscious and keeps control over the impure desires of unconscious mind. This is the 'ordinary conscience' of human. In this, both good and bad feelings of human are present. There is no boundation on good desires but to control bad desires our 'super-ego is always awaken.

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Super-Ego—It stops bad desires to enter in the conscious mind. Its work is to rule over ego. It acts as a guard between conscious and unconscious mind. Our common conscience wants to fulfill all kind of desires. But man learns about the rules and customs of society since childhood, this causes the formation of super-ego or common conscience.

According to Freud base of the id is pleasure and reality is the base of ego. According to him entire mental actions of human are inspired from the theory of pleasure or happiness. Sukh Siddhant Man succeeds in taking correct and desirable decision if his ego is properly developed, but if his ego is weak then mainly his id dominated desires will be fulfilled. But as man grows in age and experience the according to that his ego emphasizes on working according to the reality of liberal thinking.

Alfred Edler—The other psychologists of psycho analysis, Edler, worked with Frued with many days. Edler and Frued principals were different that is why Edler was not ready to accept the conclusions of Frued. Frued has considered cubit feeling as motivation or main power as the basis of all actions. While Edler thinks life is a struggle and a man has to face different circumstances by living in the society. He wants to defend and properly develop his personality. Therefore, keeping these things in mind, Edler has considered wish to gain power, base of life work and given importance to it. He has emphasized on method learning in every field of life man behavior become extra ordinary due emotional glands.

Self Assessment

Fill in the blanks by choosing the correct option:

1. In the beginning psychology was studied as branch of ..... .
   (a) Sociology (b) Education (c) Pholosophy
2. ..... is the founder of the theory of structuralism.
   (a) Wilhem Wundt (b) Frued (c) Edler
3. Theory founded by Sigmond Frued is known as ..... .
   (a) Structuralism (b) Pyschoanalysis (c) Behaviourism

4. ..... developed as a reaction of structuralism.
   (a) Behaviourism (b) Psychoanalysis (c) Functionalism

According to Edler the reason of disorder of mental patience is not any crime but inferiority complex. According to him he adopts a strange life style in order to escape from inferiority complex. This feeling is in unknown consciousness and the same feeling reflects as superiority complex in consciousness. Thus man wants to conceal his weaknesses and adopts a strange life style to show his greatness. Known and unknown both consciousnesses help a man to behave socially. This view of Edler is called 'Individuality' and 'Psychology". Study of man's life style helps a psycho analysis's a lot.

Carl Jueng—Carl Jueng is the 3rd psychologists of this school. His theory is different from Freud and Edler. Jeung inspects and analyzed association. Through these tests we can get the idea of the mental glands of human. He had two kinds of differences from Freud—

1. Frued considered the motional glands that developed during the childhood is the reason of mental disorder. While Jeung emphasized on the current circumstances as well as past.
2. Jeung has taken elaborated meaning of Libido. This is the main strength of life and can be seen in two different ways—Cubit related instinct and instinct to gain strength of life. Jueng has considered unknown consciousness more important then known conscious and accepted unknown consciousness as loss maker of known consciousness. Like man who seems brave in known consciousness are coward in unknown consciousness. There are both good and bad thoughts in unknown consciousness the views of Jueng is the combination of the idea of Frued and Edler.

Contribution of Psycho-analysis in the Field of Education—This school has influenced education a lot. Child's personality is related to education. The brief influence of this sect:

1. Heredity and Environment are the main elements to develop a man. They are related to unconscious mind.
2. Psycho-analysis affected both theoretical and applied aspects of education. Unknown consciousness or unconscious mind keeps an important place in process of learning.
3. Child's experiences and values of early life are very important in the process of education. These emotional glands developed in the childhood effects the future and behavior of child.
4. It has enlightened the importance of emotions in education.
5. With help of psycho-analysis the reasons of non-cooperation can be found in children. This sect has been proved very important to understand the process of co-operation.
6. Psycho-analysis has also emphasized like naturalists on theory of independence in the personality development of a child.
7. Research of root instincts is an important purpose of education; psycho-analysis helps in the same.
8. Education is related to the socialization of a child. Mr Jeung is the follower of these kind of ideas. According to his view group feeling and unconscious mind are deeply related. In fact socialization and culturalisation are the combination of individual unconsciousness and group consciousness. It is clear now that how education influenced by psycho-analysis.
9. This sect helps to understand the inter conflict.

5. Gestalt School

Along with behaviorism, near about in the year of 1912, Gestalt school originated. In German Language Gestalt School is called Gestalt psychology. The meanings of Gestalt are shape, form, whole or pattern. In the concordance of education and psychology it is called the entire shape. The psychologists of this school did not get satisfaction by analyzing only behavior consciousness and unconscious mind. According to them only analysis of behavior and experiences cannot describe the personality of a man properly, they have emphasized on the theory of association and entactment in mental study. They concentrate on main charactersics of behavioral action and consciousness and also pay attention towards the entire shape of all the parts and characterists. For example, entire shape of the face of a man can be seen by watching the various Gestalt like eyes, nose, ears etc. Same way by keeping all the body parts together whatever look or pattern we will get that will be called a human being not by keeping it separate. If study of parts is related to whole then only it makes some sense. Same way knowledge should be understood by keeping the entire nature of feelings and actions in mind. Gestaltists have emphasized on to move from whole to parts in order to understand something, means it is easy to first get the knowledge of a complete thing as a whole. School of Gestalt is a group of the psychologists that make whole, of behavior, action, incident, man and thing, the base of their study.

M. Wertheimer, **K. Koffka** and **W. Kohler** are the main psychologists of this school.

Contribution of School of gestalt in the field of Education—Here is the brief description of how Gestalt school has influenced the field of education—

1. This school has emphasized on tangible knowledge in the process of learning. An instructor should introduce the entire content first. We can get the knowledge of an object or incident only after understanding the entire situation. Mr. Kohler's theory of vision proves the same. This is described fully in the chapter 'Learning'. There are many processes incorporated under the process of learning such as emotions, tangibility, inspection, concentration, memory, thinking, imagination and reasoning etc. therefore this school has influenced the process of learning a lot.
2. This school has done many important works in the field of Child Psychology and Social Psychology.
3. They have enlightened the importance of environment and personality development.

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4. Explanation of wisdom given by this school is more clear and skilful than other schools. Wisdom is the base of vision or perception. Adjustment with environment is done by wisdom only. This is why in education it is important to pay attention towards the environment of the child.
5. They have introduced the new ideology to solve the problem and thinking in learning. They keep more progressive thinking than other schools.
6. They have also given an important conclusion on hyper activeness. To understand behavior this school does not study its different parts separately but they study surroundings, because behavior is the result of entire circumstances.
7. Learning is an intentional and objective action. An instructor should keep a problem in front of the student. Problem increases tension in his mind that becomes the reason of the growth of capacity to work. To remove tension he completes the work quickly. This theory is used in Project and Heuristic System.

6. Field Theory

Kurt Levin was the founder of field theory in psychology. He was the first socialistic psychologist, but he also worked with Wertheimer, Koffka and Kohler. Therefore he was influenced by School of Gestalt. His two books—"**Principles of Topological Psychology**" and" **Comitial Representation and Measurement of Psychological Forces**" are very famous. Kurt presented a different Ideology of psychology than the school of Gestalt. His psychological thoughts are based on Typology and vector. According to him behavior does not depends upon past or future but on present. He explained behavior on the basis of field that is why his theory is called the Field Theory. Here the meaning of field is place of life, that is the psychological world of a man. Psychological world that is also considered as physic-social environment, its psychological tangibility becomes the reason of man's behavior. He has divided his field theory into two parts—Structure and Dynamic.

According to **Lewin** building of field happens through man and his psychologist. In the construction of field, elements related to regions, boundary, its scope and foreign hull are incorporated. Through this man gains emotions, tangibility or stimulus and in return he expresses his reaction.

Lewin has said about mobile that mobility makes a place of life mobile or movable, means it creates energy in man to move. Three kinds of this energy are—(a) Valence, through that a man does something or not, valence can be either positive or negative, that motivates a man to work or not work. (b) Vector, it is related to mechanical science. According to this there are two qualities of force (1) direction (2) energy. Vector is the combination of these two qualities. Valence decides the nature of direction, means if valence is positive so it will take the man to the place of life where he is suppose to show behavior but if he fails to work due to any obstacle, he becomes the victim of hopelessness and falls in the situation of conflict. (c) Locomotion, actions that decreases tension that occurs due to the situation of conflict are called locomotion, that are done intentionally to get relief.

The above theory of Lewin gives important information about desirable and best construction of learning, motivation, organized and reorganized behavior of man and also about bringing mobility.

Contribution of Field Theory in Education—What is the contribution of field psychology in education, brief points related to same are as follows—

1. Lewin's field theory related to learning is very important because learning is influenced by valance. Teacher should create such surrounding that activates the positive valance of child.
2. Field psychology has maid an important contribution in child's genuine educational surroundings.
3. In Field Psychology, expressed views related to level of aspiration encouraged motivation in education. The higher education level of aspiration for more children would be interested.
4. Lewin's Group Dynamism is very important in order to make group education influential.

5. Lewin's views reflects theory of individual difference and it emphasizes its use in education.
6. Lewin has given his contribution in the field of education by defining hopelessness. Conflict, tension and relief etc in the field of psychology, because these things influence completion of a child a lot.
7. According to the views of Lewin better arrangement of education can be done by recognizing energy, needs of educational surroundings, teaching techniques and goal of child.

7. Holistic Psychology

The idea of Holistic Psychology developed in Germany and America. According to Holistic Psychologists man is an unitary organism and human is a whole person. Psychologists that believe in this theory can be divided into two groups—

(1) Organismic Psychologists and (2) Personalistic Psychologists, First's idea is more biological while other's is more social. Brief description of these two ideas is as follows—

(1) Organismic Psychologists—Adolf Meyer, G. E. Coghill, and **Kurt Goldstein** are famous among organismic psychologists. Main points according to these psychologists are as follows—

(*i*) Psycho-biological knowledge is necessary for psychophysical health, so that the diagnosis and prevention of decease can be done.

(*ii*) Human body develops from whole to parts and learning process moves from ordinary to extra ordinary.

(*iii*) Energy is equally spread in the creature or physical organs of human body. This idea introduced the theory of Equalization of Energy in psychology.

(*iv*) A creature faces two circumstances in order to adjust with environment – first, real environment, that is in front of him and second probable environment, originated from unreal environment for that creature brings changes in his behavior.

(2) Personalistic Psychologists—G. W. Allport's name is specially known to develop science of personality among personalistic psychologists. Though Stern Introduced the ideology of personalistic psychology to the world (1906). According to stern personality has unity, value and purpose. Man is unitas multiplex. In medical psychology Stern made applied use of personalistic psychology. **Allport** emphasizes on the completion of an individual. According to him the individual is an unique organized whole. According to him the definition of personality is—

"Personality is a group dynamism of psychophysical systems that is present in an individual, that decides individual's extra ordinary adjustment with his environment."

After the analysis of the definition mentioned above it is clear that personalistic psychology gives importance to whole and considers it physically and mentally movable through that he adjusts with his environment.

Contribution of Holistic Psychology in Education—Here is the contribution of holistic psychology in education—

(1) Holistic psychology revealed this fact for the very first time that the development of a child happens from whole to parts and knowledge from ordinary to extra ordinary. Two educational maxims developed through this theory – 'from whole to parts', and 'from ordinary to extra ordinary'.

(2) Main contribution of holistic psychology is to develop 'Personalistic Psychology', through this the techniques of knowledge and measurement of personality could develop.

(3) Due to the influence of holistic psychology educationists understood the importance of adjustment. And child - nasty adjustment and well-adjustment reduce the emphasis on efforts to adopt.

(4) If contribution of school of gestalt in education is accepted so the contribution of holistic psychologist is also very important in education because ideology of holistic psychology created the background for the development of Gestalt Psychology.

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(5) Development of psychobiological by Holistic Psychology is also very important because this ideology has contributed in the diagnosis and treatment of mental disorder of children.

8. Purposivism

Purposivism is also known as Hormic. In psychology the founder of this ideology is **William Mc. Dougall** of England. The word hormic is derived from Greek word horme , its meaning is motivator. Therefore psychologists who believe that motivation, motivator and purpose are important parts of psychology are called Hormic or Puposivistic Psychologists. This ideology believes that behavior begins through motivation. Motivational behavior is like achievement of goal in which two components- willpower and far sight are mixed. Purpose motivates an individual to behave. Therefore in psychology emphasizes to study those facts that motivates some work to start and end or behave. According to **Mc. Dougall** man and animal behave like 'a machine' and behavior is a quality of living thing. Under this ideology Mc. Dougall founded the theory of root instinct.

Theory of Root Instinct—According to this theory of Mc.Dougall root instincts are by birth but it can be improved by practise of learning. According to Mc. Dougall on the primary level root instinct is a complete process that can be divided into three parts—(1) On the receptive side. (2) On the execution side. (3) Emotional pulse or striving. According to **Mc. Dougall** there are total fourteen kind of root instinct and emotions related to that.that is listed below—

Table 1.1

S. NO.	Root Instinct	Emotion
1.	Combat	Anger
2.	Escape	Fear
3.	Food Seeking	Hunger
4.	Repulsion	Disgust
5.	Parental	Affection
6.	Sex	Lust
7.	Curiosity	Wonder
8.	Apeal	Distress
9.	Submission	Negative Self Feeling
10.	Self Assertion	Positive Self feeling
11.	Company Seeking	Loneliness
12.	Coustruction	Feeling of Creativity
13.	Laughter	Amusement
14.	Collection	Ownership feeling

Watson, Bernard and Thorndike criticized this theory of root instinct and its related emotions of Mc. Dougall and did not accept it as theory of motivation, then too it has educational importance.

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Contribution of Purposivism in the Field of Education—Though purposivism specially theory of root instinct is not accepted now as motivator of behavior, yet a few points of it are still important in the field of education, that proves the importance of purposivism in the field of education:

(1) Motivation is important for learning. Instructors can motivate children for influential learning by taking benefit of root instinct.

(2) Teachers can motivate and help children for co-operation by moderating their root instinct and giving guidance in the right path.

(3) A few root instincts given by Mc.Dougall are important in the education such as- curiosity, self respect and construction. In education learning and teaching can be more influential by using these tact.

1.5 Summary

- Ancient philosophers such as Aristotle and Plato considered psychology a subject that studies about soul.
- Therefore psychology was accepted as a science that studies about mind. This definition of psychology was accepted till 1870 and mind remain the subject scope of psychology that was a branch of philosophy.
- From 1879 BC the William Wundt founded the very first laboratory of psychology in Lipzing university of Germany (its name is now changed to Karl Marx University)psychology's relation with philosophy gradually decreased and its nature became more applied. Therefore its object changed to mental activities or conscious experiences from mind or soul.
- Psychologists observed after a deep study that human behavior is influenced by consciousness. Therefore psychology was accepted as science of consciousness but a few psychologists observed that all behavior of human are not influenced by consciousness, but he behaves unconsciously too.
- In fact psychology is the science of human behavior. It cannot be accepted as material science. Not it is called natural science. There is a specific and fundamental difference between psychology and material science. In material science substance can be controlled by all mean and success can be achieved after doing desired practical in the laboratory. Opposite to this in psychology a human being is a subject instead of a substance that cannot be controlled like a substance.
- Education and psychology are deeply related, this topic is enlightened in previous chapters too. Through Psychology human brain achieves knowledge, therefore its deep relation with education is mandatory.
- In 20th Century the experiments that psychologists did give different explanations of behavior of living thing. That is why, different of schools different ideology originated in psychology.
- The motive of educational psychology is to help in the holistic development of a child. Schools of psychology try to understand human mind from their own point of views. Each school has deeply studied mental problems. Some schools have influenced education process in the field education by analyzing the subjects related to learning process, mental development and personality development etc.

1.6 Keywords

1. **Hopelessness—**Frustration
2. **Valence:** To attract Exert traction

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1.7 Review Questions

1. How does Psychology differentiate from Philosophy and Science? Describe.
2. What is Structuralism? How is it different from functionalism?
3. Present as analysis of behaviorism under the study of psychology?
4. Write an essay on critical "Psychoanalysis" of principle of Freud?
5. Write your thought on the "Principle of Scope"?

Answers: Self-Assessment

1. (c) 2. (a) 3. (b) 4. (c)

1.8 Further Readings

Books

1. Psychology – *Dr. Saryu Prasad, Agra Book Store, Agra*
2. Psychology – *The Study of Human Behavior – Brij Kumar Mishra, PHI Learning, New Delhi*
3. Educational Psychology – *S.K. Mangal, PHI Learning Pvt. LTD., New Delhi*
4. Development of Learner and Teaching Learning Process – *A.K. Verma, Hindi Book Center, New Delhi*

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Unit-2: Educational Psychology: Meaning, Nature and Scope

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Objectives

After the study of this unit, the student will be able to—

- Understand the Educational Psychology.
- Understand the scope of Educational Psychology.

Introduction

Man is a social animal. As soon as he takes birth, he is connected to the society in some way. How the human behavior is or should be, even this learning comes from the society. The objective of Educational Psychology is to bring changes in human behavior through the medium of Education. Under the Educational Psychology, a Psychological study is done of the problems and their solutions that arise in the learning environment.

2.1 Meaning and Definition of Educational Psychology

It is evident after understanding the meaning of Education and Psychology that Education is a social process, whose objective is to transform the human behavior and Psychology is such a science that is related to the study of behavioral changes. This is the behavioral form of general Psychology. The Educational Psychology studies the various aspects, related to the action of the learner and learning, and teacher.

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Educational Psychology is an important branch of Psychology. This is made of two words-'Education' and 'Psychology'. It means the Education related to Psychology i.e. it is scientific study of human behavior in the process of Education and it uses Psychological principles in solving the Educational problems. In the words of Skinner-"Educational Psychology takes its meaning from Education, a social process and from Psychology, a behavioral science." The behavior of man is changed by Education and Psychology is such a science that studies all the aspects of human behavior. In this view, Education and Psychology, both are related to the development of human personality. The basis of Educational Psychology, Psychology deals with the rules and facts of human conduct. In the same way Educational Psychology deals with the specific kind of people, the behavior and conduct of students either getting education in school or outside school. Its scope is extremely narrow and specific. Educational Psychology utilizes procedures of General Psychology for the study of its subject. It deals with the qualities of children, nature and their behavior in educational situation and represents the solution, analysis and explanation of education related problems. In the words of **Skinner**, ''Educational Psychology utilizes those findings that deal specifically with the experiences and behavior of human being in educational situation.

Educational Psychology studies those processes that affect human behavior. Psychology, not only expounds its principles, but is also tells us how life could be made healthier and prosperous using its principles. Psychological principles are used in dealing with the various problems and situations of daily life. An educational subject is important in this specific field. Since the different principles and the rules of psychology are applied in Educational situations therefore the Educational Psychology is also called the behavioral Psychology. What is Educational Psychology? What does it mean? It will be clearer with its description related to various definitions, objectives and scope.

Notes Educational psychology is such a science, that studies all the aspect of human behavior. In this point of view Education and Psychology the both are concerned with human development.

Psychologist and Educationalist have defined the Educational Psychology in different ways:

(1) Skinner—"Educational Psychology deals with the behavior of human being in educational situation.''

(2) Crow and Crow—"Educational Psychology describes and explains the experiences of an individual from birth to the old age."

(3) Knall and Others—"Educational Psychology is concerned primarily with the study of human behavior as it is changed and directed under the social process of education."

(4) Sware and Telford—"The major concern of educational psychology is learning, It is that field of psychology which is primarily concerned with the scientific investigation of the psychological aspects of education."

(5) Alice Crow—"Educational Psychology represents the application of scientifically derived principles of human reactions that affects teaching and learning.''

(6) Kalsanik—"Educational psychology is the application of the finding and theories of psychology in field of education."

(7) Stephan—"Educational psychology is a systematic study of educational growth."

According to **J.M. Stephens**—"Educational Psychology is psychological study of the surroundings of Educational growth. In this view under the psychological study, not only the uses of Psychological theories are told but also it proves to be a specific branch of psychology. This branch tries to explain the educational movement in the same way as that of the branch of Social Psychology tries to explain the social events.

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On the basis of above description we can say that educational psychology is the psychological study of students' problems and their solutions that arises in the educational environment along with the responses toward educational environment. It has been widely explained in "**Encyclopedia of Educational Psychology**", in learning, is related with human element. This is such a field in which the concept are applied in the filed of education that are gained after experimental work done in laboratories. However this is such a field as well, in which, the experimental work is done to determine the procedures of studying the behavioral of such concepts and special interest in education. It studies the various sections of learning that are directed to prevent a student in adapting to the society with the optimum security and satisfaction.

Nature of Educational Psychology—On the basis of the above definitions, the nature and structure of Educational Psychology could be discussed. The nature of the Educational Psychology is considered to be scientific. It becomes clear from the study of Educational Psychology that the principles of psychology are applied in the filed of education. Today Psychology has proved valuable in educational processes. With the help of psychology, the scientific principles pertaining to the rules of learning, concentration, tiredness, ways of memorizing, the principles of syllabus structuring, learning and its evaluation are studied. Therefore, from the angle of Educational Systems, the nature of Educational Psychology, like Psychology, could be considered scientific. Educational Psychology establishes its general principle by the scientific study of its problems and their solutions and predicts the person's behavior related to the subject of learning. The various methods of Educational Psychology shall be described further. Now a days there are many researches are being done in the filed of Educational Psychology for the teachers, counselors and all the procedures of schools, as well as to understand the human nature. Educational Psychology is considered to be a behavioral science because it describes the process of education on the basis of fundamental principles of human behavior.

In this way Educational Psychology presents the description, analysis and solutions related to the problems of learning. The structure of Educational Psychology becomes clear from the principles of psychology. In brief, we can say, that:

(1) Educational Psychology is also a major behavioral science. It also studies the 'what', 'why', and 'how' of human behavior. It explains the process of learning in its surroundings scientifically. The thoughts of psychologist Crow and Crow are, "Psychology explained 'how' of human development as related to learning education attempts of provide the 'what' of learning educational psychology is concerned with the 'why' and 'when' of learning." Thus, as per **Crow** and **Crow**, Educational Psychology can be considered a behavioral science. Because it attempts, to explain the processes of learning established by scientific methods related to the human behavior in context of learning.

Sware and Tellford—"Educational Psychology uses the method of science in the form of its findings."

(2) Educational Psychology is of scientific nature. Even under this, a scientific and systematic study is done for students and their behavior in context of the learning environment.

(3) The focus of Educational Psychology has been the learning in educational surroundings. In order to understand Educational Psychology we should consider **Skinners** thoughts, "Educational Psychology utilizes those findings that deal specifically with the experiences and behavior of human being in educational situation."

At last we can say, Educational Psychology is the science that studies the education according to the principles of psychology. Although Educational Psychology is a branch of Psychology, yet it delivers it principles independently by resolving the educational problems on experimental basis and on the basis of these principles, studies the human behavior in the educational situation. This procedure also affects the learning process.

2.2 Educational Psychology: An Independent Discipline

Regarding Educational Psychology, most of the educationists think that it has now become an Independent Discipline. As it is evident from the following excerpt. "Today's Educational Psychology

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does now apply the general principle of Psychology as it is, but it also applies it into day to day activity to testify and after the experiments it presents its principles separately. Therefore modern Educational Psychology has its own scope, programs, problems and methods. All of these activities show a relationship with the general psychology however they are not dependent on psychology." It is related to Psychology on one hand and to Education on the other. Education discipline has close relation with Educational Psychology as it is compulsory to study Educational Psychology with it. Hence we can say that Educational Psychology is a social science of Education Discipline.

Educational Psychology is now considered as educational discipline. Educationists and psychologists have expressed the following thoughts in this regard—

1. Educational Psychology focuses itself on human behavior.
2. It is a body of facts and information which are found as a result of Investigations and Observations.
3. This body of knowledge can be generalized in form of principles and rules.
4. Educational Psychology has developed a new system in which knowledge is searched, hypotheses are testified and principles are expounded.
5. This system is helpful in solving the problem that arises by them.
6. These information, knowledge, principles, and systems all make up Educational Psychology and provide the basis for Educational Theory and educational conduct.

Educational Psychology as an Occupational Subject—The teacher is a major factor in Teaching and learning process. Hence it is important for one who would become a teacher and adopt teaching profession, to study Educational Psychology. In this way, Educational Psychology can also be addressed as a professional subject. This is described in detail in 'The Scope of Educational Psychology'.

2.3 The Scope of Educational Psychology

It becomes evident after pondering over the meaning and objective of Educational Psychology, that, Educational Psychology studies the student in educational situations, the process of learning, and the result of learning (achievement or product) in psychological way. Charles E. Skinner has defined the scope of Educational Psychology in this way, "Educational Psychology studies the human behavior in educational situations. It concerns with the study of such human behaviors and personalities whose welfare, development and guidance happens through the process of learning." Regarding the subject matter of Educational Psychology some psychologists think in this way—

(1) **Garrison and Others**—"The subject-matter of educational psychology is designed (1) to enhance and enrich the lives of the learners and (2) to furnish the teachers with the knowledge and understanding that will help the institute improvement in the quality of instruction."

(2) **Douglas and Holland**—"The subject-matter of educational psychology is the nature, mental life, and the behavior of the individual undergoing the process of education."

(3) **Crow and Crow**—"The subject-matter of Educational Psychology is concerned with the conditions that affect learning."

Education and psychology are closely related. Today psychology has begun to be used in education and with its help, education related issues are also tried to be resolved. Because education is a continuous lifelong process, therefore the scope of educational psychology is not limited to childhood or adolescence; rather it is an elaboration of all educational situations of a person.

When question are asked like who shall be imparted education? How it should be imparted? In which situation and in which system shall it be imparted? Who shall be giving it and what is education? Then, in order to get the answers of these questions we consider these points like the student, process of education, educational situation and the results of learning under educational psychology primarily.

Notes

(1) Educational Situation Related Study—Situation and Environment play a very important role in Education. The creation of Educational situation is well planned for Education. Education attempt could not get success without the proper Environment. Environment is also studied in psychology. The elements that develop behavior are included in Environment. The effective environment should be constructed for the successful education of a child. According to the need of Education, if the environment is not well planned and controlled; Education and learning could not be delivered successfully. Therefore, in Educational Psychology, the importance of environment, the kinds of environment, the conditions for learning situation, educational techniques, the education of class surroundings and environment, the learning of various personality, personality development, the effect on arrangement and health growth, development etc and related subjects, are also widely studied.

Lindgren has considered a central scope, of educational and learning situation. According to Lingren there is a situation for the education of a child, in which educational process takes place. Situation includes those elements that affect either child or educational process or both of them. Class, library, discussion room, Laboratory etc create the direct and immediate situation, while community, management, administration, policy-makers etc remotely but effectively develop and control the educational situation. From this point of view, educational situation related study, has been included in modern Educational Psychology.

(2) Student Related Study—According to the Modern Psychological consideration learner, learning, in the bilateral process of education, is the central point of education-process. As soon as the education process starts, this main question arises that who are we educating? Certainly our response will be-To the child or more extensively it is called learner. Today, in the education-world, this main question is considered specially. And therefore the Educational–Psychologists have considered, child or student, the central point of education. And the education that revolves around it, is called-central education or Psychological Education. This concept is the outcome of that Psychological movement that is begun by Educationalist Russo and Pestology. Today it has got the great support of everyone except Educational– Psychology. The question arises that what do we mean by student? In easy words it means–learner.

What all do the teacher and the guardian of student need to know about the student and why. On this matter the study of the following things related to the student is essential—

(A) Heredity and Environment—Child's education is affected by environment and the virtues that he gets by heredity. The both are studied in Educational Psychology and it is attempted to know that education is more affected heredity or environment.

(B) The study of child development`s various stages— In it, the principle of growth and development, the various stages of child development like childhood, adolescence, adulthood are studied. And the form of the education is delivered according to the qualities of these stages as physical, mental, emotional.

Physical Development—Under the physical development, the different stages of child development-the qualities of childhood, adolescence are studied.

Mental Development—In it emotional, representation, examination, concentration, interest, learning, inspiration, remembrance, absent mindedness, imagination, rumination, decision, growth, etc, are studied. And various methods are applied to know that how shall these be developed in the child.

Emotional Development—Under this we study emotions, emotional expression, stable com-posure, complexes, fundamental traits, and easiness are studied. Sometime emotional expressions are helpful and sometimes they are a hindrance. Educational psychology, by studying it, tries to find out how emotional expressions can help the child.

Social and Character Development—Under this, social activities, games, the activities of community creation, activities of subject-matter changes, which help in social and characteristic development, all those things are studied.

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(C) The Study of Personality Differences of Children—Educational psychology studies various types of children, sharp minded, normal, dull minded, problematic, abnormal, mentally and sick children of various other personalities and it determines which kind of education shall be given which kind of personality and by which method.

(D) The Study of Mental Health of the Child—under this sections we study the mental health, the principle of mental health, the hindrances to mental health and the progressive factors of the children.

(E) Under this we study the behavioral and problems of mixing up with others, and the ways of providing guidance.

(3) The Study of Learning Process—Learning has great importance in life and the only objective of education is to make a person learn. Learning is a result of stimuli. A child begins to respond to the stimuli which are present in the environment, which are related to the basis instincts. He keeps on improving these responses with experiences. Gradually giving integrated and cultured responses is learning. A man is able to establish himself in the society as a result of this kind of learning. Learning process is the process of social inclusion. Learning is the process of instituting the progressive nature. Learning is the continuous process which begins and balances by internal and external factors and it is directed towards the adaptation and inclusion of conditions.

Did u know? A child gets inspired by the stimuli and responds internally and externally and as a result of it he learns.

Following things are studied in the process of learning—

(a) Nature of Learning—With the help of experiments of educational psychology, we learn which methods of learning are useful, and how they can be used in principles of learning, rules of learning, the various methods of learning, and significance of punishments and rewards in learning.

(b) The Role of Inspiration in Learning—What is importance of inspiration in the process of learning is considered.

(c) Transfer of Learning—Under this section we learn what is meaning and importance of Transfer of Learning. How this is accomplished what, and what are the various principles of transfer of learning etc.

(d) Memory and Forgetting—Under this section, types of memory, parts, qualities, kinds, rules and methods of memory are discussed. For the process of learning, the types of forgetting, structure and solutions are essential to be known. In education, in order to make the process of learning a success, it is important to focus on memory test. One has to react according to what he has learnt as a result of learning. Memorizing is a process of acquiring, which is an important part of process of learning. Therefore memory and forgetting come under the subject of educational psychology.

(4) The Study of Product of Learning—Under the scope of educational psychology, come the conditions and processes that affect learning. Man acquires some knowledge as a result of learning. Learning becomes possible with the help of some mental processes. Whatever a man acquires as a result of learning, it is called the result or the product of learning. In order to know the product of learning, following shall be considered carefully.

We should pay attention to the following guidelines in order to know the product of learning—

(a) Thinking, concept creation, logic and solutions are very important. For the intellectual and mental development, or in order to maintain the process of learning, these shall be developed.

(b) It is important to develop the creativity in a child. From the viewpoint of education, we shall use this tendency through the creative tasks and impart education.

(c) Many qualities can be developed in the students through the feeling of communion. For this, social interaction is necessary with having various groups. Feeling of communion and leadership has proved very important for education.

Self Assessment

Choose the right option for the following—

1. Who has given the definition "Educational Psychology is the study of educational growth"
   (a) Alice Crow (b) Stephen (c) C. L. Kundt
2. "Educational Psychology uses scientific methods in its search." Who has given definition
   (a) Sware and Tellford (b) Crow and Crow (c) Douglas and Holland
3. "Educational Psychology studies the human behavior in educational situation." Who has given this definition
   (a) Charles E. Skinner (b) Douglas and Holland (c) Garrison

(5) A Study Related to Measurement and Evaluation—Under this, the evaluation of educational achievement, and subject expertise, the various aids to evaluate the personality like means, methods, tests and statistical works are used. In the process of learning, the intellect of teachers, their personality and their various abilities are important to be known. All come under the scope of educational psychology.

(6) A Study Related to Educational and Occupational Direction—On the basis of the outcome of evolution and measurement, child is directed related to, education and occupation.

Task Is in your view, the study of education, should be essential for a successful teacher? Consider with logic.

(7) Education Related Study—Teacher is an important part of education. In the process of learning, teacher is especially supportive in order to develop, control and planning the situation of learning. In the process of learning, the inter relationship that happens between teacher and student, helps in educational and learning. Even teacher is an important factor in learning. In the personality of teacher, creation affects much on the development of child. Therefore in educational psychology, teacher's personality, training, his physical and mental health etc., are widely studied.

The study related to the above different things is studied widely under the scope of psychology. This is a exception that in the books of psychology, according to the need, something has more importance or some has less of it. **Prof. C.L. Kundu** has considered five main subjects under the scope of psychology:

1. Human growth and development
2. Learning
3. Personality and adjustment
4. Measurement and Evalution
5. Technical and techniques in Education

According to **Prof. Kundu**—"In short, whatever is educational or whatever touches child in his classroom, behavior comes with the scope of educational, psychology". At last we can say in the form of conclusion the words of Skinner-"Educational psychology takes for its province all information and techniques pertinent to a better understanding and a more efficient direction of the learning process."

Notes

The scope of educational psychology is evident on the basis of above discussion. The extended explanation on this subject have been needed describing in various chapters.

2.4 Summary

- Psychology is such a science that is related to the study of behavioral changes.
- The behavior of man is changed by education. Psychology is such a science that studies all the aspects of human behavior. In this view, Education and Psychology, both are related to the development of human personality.
- Since the different principles and the rules of psychology are applied in Educational situations therefore the Educational Psychology is also called the behavioral Psychology.
- From the angle of Educational Systems, the nature of Educational Psychology, like Psychology, could be considered scientific. Educational Psychology establishes its general principle by the scientific study of its problems and their solutions and predicts the person's behavior related to the subject of learning.
- Situation and Environment plays a very important role in Education. The production of Educational situation is well planned for Education. Education attempt could not get success without the proper Environment. Environment is also studied in psychology. The elements that develop behavior are included in Environment. Therefore in educational psychology, teacher's personality, training, his physical and mental health etc, are widely studied.

2.5 Keywords

1. **Creative Tendency**: the quality of creation.

2.6 Review Questions

1. What do you understand by Educational Psychology?
2. Throw some light on the scope of Educational Psychology?
3. 'Educational Psychology is an independent discipline'-write a commentary on it.

Answers: Self-Assessment

1. (b) 2. (a) 3. (a)

2.7 Further Readings

Books

1. In children the importance and information—*Seema chaupra, Hindi book center New Delhi.*
2. Educational Psychology—*S.H. Sinha and Rachna Sarma, Atlantic Publication, New Delhi.*
3. Educational Psychology—*M.K. Mangal, P.H.I. Learning Pvt. Ltd., New Delhi.*
4. The Development of Educational Psychology and Educational Learning Process—*A.K. Verma, Hindi book center, New Delhi.*

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Unit-3: Methods of Educational Psychology

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3.4 Summary

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Objectives

After the study of this unit, the student will be able to—

- Understand various methods of Educational Psychology.
- To get some understanding of human historical system.

Introduction

Educational Psychology studies of the human behavior and various problems, under the educational situation. This study is done by one method. Method means the system and way, which helps us in getting a conclusion , after doing the study, analysis and explanation of human behavior. Method is a way of getting facts. Educational psychology also uses the scientific method to solve and study of its various problems. In educational psychology, the study of scientific method could not be used strictly like any other material science because here ,the subject matter is study of the educational behavior of living entity, student. We know this very well , that due to some reason Education and Educational psychology could not be put in the category of pure science(chemistry and physics), because their rules are permanent. Because these sciences are related to the matter where as the education is a human subject and is related to the human behavior and society.

Now educational Psychology has been put in the category of science, it has followed the scientific method for its works by ignoring imagination, guess and superstitions. The meaning of 'study method' of scientific language, is the way, by which truth is discovered.

Notes

What is scientific method?—This is a method of study, that moves under the scientific rules. Scientific method only could be used for the study of natural and material things, this is an illusion. In scientific method there is not any place for religion, worshiping and imagination in order to get true knowledge related to today's social events. On the contrary observation, experiments, and classification and the ordered functional is called scientific method. Shri George A.Lundberg has cleared the meaning of scientific method in this way—"Social scientists are committed to the belief that the problems which confront them are to be solved if at all, by judicious and systematic observations verification, classification and interruptions of social phenomenon. This approach in its most rigorous and successful from is broadly designated as the scientific method."

Essential elements of scientific method—Mr. Martin Dale and Monachesi have said—''Science is also a method of consideration. This also rises in the responses of problems like all other consideration. It differs from all other thoughts mainly in method. The quality of scientific method is—(1) that it focuses on inspection. (2) Tries to test behavioral or original concept. (3) Develops the experiments or model situations, which could take test of these concepts. (4) Invents such a new tools that may help in more acute measurement and more realistic observation. (5) And by study it outcasts firmly the self model evaluations of scientists and concentrates at this time that how do events take place in reality, not that 'why' it happens or 'what' should happen." We can say in brief, that scientific method is a method of study that moves under the scientific rules.

Educational-Psychology uses the scientific method in his researches and for the study of its problem. There is incredibility, reality, purity, objectivity and impartiality in these methods. In the modern age the measurement of scientification of any subject is its method. The main characteristics of this method are Verificability, definiteness, Objectivity, Generality, and predictability. In this study, the student delivers the rule, after inspecting the truth by observation and inspection, finding out conclusion relating to the subject.

3.1 Methods of Educational Psychology

The methods of Psychological study can be divided between two groups—

(1) Internal or subjective Method—Under this method person analyses and explains his own behavior, as in the introspection and anecdotal method.

(2) Outer and Objective methods—In this method, facts are collected by others. There are many methods under it.

The various methods, of both of these groups, have been described under—

Educational Psychology is closely related to Psychology. Therefore there is affinity in both of these studying methods. The important methods of Educational Psychology are following—

(1) Introspective Method

(2) Observation Method

(3) Experimental Method

(4) Case History Method

(5) Ancedotal Method

(6) Development Method

(7) Comparative Method

(8) Interview Method

(9) Questionnaire Method

(10) Statistical Method

Notes

(11) Clinical Method

(12) Test Method

(13) Psycho-Analytical Method

The summary of above methods are—

(1) Introspective Method—This method was mostly used in ancient time, but today this method is not considered scientific. So it is used less. 'Introspective means' To look within or self observation. In this method, person himself, describes analysis and observes his mental process. In introspection, person tries to evaluate his feelings and remembrance of his experiences. A Person can express his experiences through introspection.

According to Scout—"The sequential study of self mental process is called, introspection." **Woodbirth** has called it self Observation. When a man expresses his feelings, he has to take the medium of self observation, because mental process are internal. Their direct knowledge could be gained by this method. On the basis of its mental process observation, whatever data he presents, is called introspection data. Two things are found in introspection—(1) Person observes self mental process, and (2) presents discretion related to them.

Qualities—

(*i*) The greatest qualities of this method is this, man is able to understand himself, after getting knowledge of his mental process and stages. The direct study of man's mental process is made possible by Introspection. As how does he feel in weal-woe, it can be responded by introspection.

(*ii*) This method can be used at any time and anywhere. In this method any laboratory, tool and implement, is not needed. **Ross** has said—"Psychologist's own brain is his laboratory, because it lives within him, so he can inspect any time according to his own desire."

(*iii*) Person's thinking power grows by using this method again and again. By the study of this method others mental activities can be studied. The experiences that different people have felt in relation of mental process, those experiences can also be comparatively studied here.

(*iv*) The scientific study of Psychology has been started by introspection method. Therefore this method has given important contribution in making Psychology a science. Although the scope of this method is limited, many Psychological problems have been studied by using this method. Introspection method is an important method of Psychology.

Defects—

(*i*) It is impossible to do the observation of mental process, because they are unclear, fickle, unsteady. The changes that take place in them are sooner. Mental process as emotional expression, feelings, thoughts etc, cannot make us stable, because as soon as we try to concentrate, they go away from our mind. A person cannot live every moment in the same condition, so his attention goes towards the other things.

(*ii*) The another fault of this method is, that, the same person is observer and councilor of his own self. He has to perform both of the acts. And this work is opposite to each other, because here the observer and councilor is same. This is not worthy. The inspection of mind by mind is impossible. As Ross has said—"spectator and sight both are the same, because mind is the place and equipment of inspection." He cannot observe all the experiences honestly. Often man does not want to express his feelings due to hesitation. Sometimes our mental feelings come to an end on paying more attention to them. As soon as when a person ruminates, he wants to study that rumination by introspection, then it is often seen at that time, the mental process of that person comes to end.

(*iii*) This method is not possibly used for all kinds of human being. This method can be used only for the study of adolescence, because it is depended on the thinking power. It cannot be used on young one and mentally ill. It can only be used on the common person.

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(*iv*) This is also a vice of this method, that we cannot express our feelings by language, As often we do not express our feelings of psychologically and mentally suffering, weal –woe in proper words. According to the Psychologists, this fault is not of this method, but only of language, because we do introspection, but indirectly the limitation of this language is also affected on introspection. The question arises, if we cannot express our introspection feeling, how will its Psychological study be possible. The Psychological method should be such as, by which psychological study could be completed in spite of having mistakes in language.

(*v*) The knowledge obtained by this method is subjective. The mental condition of a person can be known by it. The equipment, obtained by it, is differing from the equipment, got from the introspection of other person. So neither they can be compared, nor their truth can be inspected. So on the basis of the knowledge, obtained by it, scientific rules cannot be prepared.

Did u know? It is impossible to inspect the mental process, because they are unclear, movable and unsteady. And changes keep in them sooner.

(2) Observation Method—In this method , student observes human behavior and activities on the basis of his pre experiences. Whatever is seen clearly from outwardly, that is inspected, and on the basis of that, the knowledge of his mental condition is gained. After inspecting attentively the responses, activities and human behavior, his mental condition is traced. As seeing the smile on someone's face we come to know that he is pleasant. And understand him unhappy to see him in tears. By outer observation the human behavior, happening in natural situation is studied. Practically psychologists have given special importance to this method. They have considered behavior to the subject of Psychology in place of feeling, And outer observation method considers the Psychological method in place of introspection. According to them feelings are subjective and objective. On the contrary external behavior of person can easily be seen or understood. Seeing his behavior, his mental condition is known. According to them, the conclusion obtained on the basis of study of human behavior will be more scientific, because behavior is seen in the physical activities of a person, an external observer, observing the physical activities of person, delivers the general psychological rules on the basis of them. Observation method has following steps—

(a) Direct observing to other's behavior and finding out their mental condition—this is the main fact of this method. It is essential to notice carefully all the facts by observation.

(b) Explain and analyze the behavior—Under it student explains and analyses the other's behavior on the basis of his mental observation, seeing the tears of anybody , on the basis of our pre-experience, we think of his unhappiness.

Notes By external observation, the behavior of person happening in natural situation is studied.

3.2 Experimental Method

Experimental Method is the blessing of natural science, by which cause and effect relationship is studied in the best way. In modern social psychology the use of this method is growing day by day. In this method the social behavior is also studied in real situation, that differs from laboratory. These are called field experiments. Some main definitions are following—

Notes

1. **Rathos**—''Exepriement is a method of scientific investigation that seeks to discover cause and effect relationships by introducing independent variables and observing their effects on dependent variables''.
2. **Garrett**—''Experiment is observation under controlled conditions.''
3. **Townsend**—''No experiment is better than its poorest control.''
4. **Jahoda**—''Experiment is a method of testing hypotheses.''
5. **Festiger**—''The essence of experiment may be described as observing the effect on a dependent variable of the manipulation of an independent variable.''
6. **Chaplin**—''Experiment is a series of observations carried out under controlled conditions for testing the hypotheses.''

On the basis of above definitions it could be said that experimental method under which, according to the plan manipulating variables are studied under controlled condition. In this method action is called dependent variables and cause is called independent variables.

There are many factors to affect anybody's behavior. Student selects some of these factors, and controlling the rest of factors, the affect of selected factors on person are studied. The selected factors are called independent Variables, controlled factors are called Intervening Variables. During the experiment time the effect of manipulating variables on the action is noticed. At last, analyzing hypotheses of obtained data are verified. There are minimum two study groups in experimental study one of them is called controlled and other is experimental group.

Task Write a commentary on Experimental Method.

Characteristics of Experiment—

The qualities of Experiment are following—

1. Under it the condition is directly inspected.
2. Under it Experimental conditions are controlled.
3. Under it Cause-effect relationship are studied.
4. Hypotheses are verified by it.
5. Under it the effect of dependent variable on the independent variable is studied.
6. Under controlled condition the observation of the effect of any factor is called experiment.
7. Under it controlling the external factor the effect of the experimental variable is studied.
8. The main qualities of experiment are-the uses of controlled condition, the effect of observation, the pure measurement of effect.

Self Assessment

Tick right (✓) and wrong (×) in front of given statement:

1. The introspection method of educational psychology is the predominant method. ☐
2. Under the observation method whatever is seen from outside, on the basis of that observation, the study is done. ☐

Notes

3. Experimental method is the method under which, according to the plan manipulating variables under controlled condition are studied. ☐
4. Pure experiment is possible by Experimental method. ☐

Steps of Experimental Method

The steps of Experimental Method are following—

1. **Problem**—Under it student selects any one problem. He can use his previous works, review to the related literature, study of the present work, exchanges of ideas from the specialist etc. Sometimes he himself selects the burning problem.
2. **Review of the Related literature**—After reviewing the literature he wants to know, on this problem how many scholars, 'how and what 'results have been obtained, and when these studies have completed?
3. **Formulation of hypothesis**—On the basis of review literature he does the formulation of hypothesis. By making hypothesis the problem is pin pointed.
4. **Variables**—Under this inventor decides that how many variables he has to take and how will he recognize and control the intervening variables.
5. **Sample**—Under this it is decided that who will belong to study group and how much large it will be. Sample selection is done by some special method.
6. **Tools and Materials**—It is decided that which kinds of tools will be needed to collect the data. Sometimes he himself has to construct the tools.
7. **Control of Variables**—under this scientist, after controlling the mediator variables, gets the pure data.
8. **Procedure**—under this scientist accumulates the short description of his whole plan.
9. **Result**—Conclusion is obtained after analyzing the obtained data and it verifies the hypotheses.
10. **Discussion and Generalization**—Explaining the obtained data, Psychologist compares his results with the results of other Psychologists. At last on the basis of statistical method he generalizes his result.

Difference between Laboratory Experiment and Field Experiment

In laboratory experiment it has been seen that it is known to patient that experiment is on him. Then his behavior is not natural. Along with the effect of artificial situation of laboratory, pure result is also not obtained. Due to these reason field Experiments have been developed. It does not mean that Field experiments are faultless. The biggest boundary of the Field Experiments is, that the manipulation of variables are difficult than that of Laboratory Experiment.

Advantages—The advantages of this method are following—

1. Cause-effect relationship is studied with more purity.
2. This method is pure and brief in comparison of other methods.
3. This method is the best method of hypotheses test.
4. This method is most predominant scientific method.
5. The result obtained by this method, is subjective, incredible, legal, and sovereign.
6. By this method, doing real test, true data and facts can be collected.
7. Conclusion got by this method can be re-verified in the same condition.
8. This method proves helpful in maintaining relationship between S-O-R.

9. With the help of this method many education related problems can be solved.
10. Under it, user is always active.

De-merits—there is also some de-merits in this method which are following—

1. It is impossible to do pure experiment.
2. It is a difficult job to manipulate variables.
3. Experimental method cannot be used successfully in the field experiment.
4. Patient does not corporate in using this method.
5. This method cannot be used in studying the various aspects of life.
6. This method is more expensive in comparison of other method.
7. In this method instability comes in the behavior of patient.
8. It does not seem possible to study all kinds of events by this method.
9. Not accepting this method as a independent method, this method is considered as a collection of many methods.
10. Trained persons are needed in this method.

Conclusion—The results obtained by this method are truer, credible, and scientific than that of others obtained results. Its conclusion can be verified, on the basis of these, rules and principles can be prepared. Thus, this is a scientific method. In spite of having many de-merits, this method has been considered as the best method of research by Psychologists.

3.3 Case History Method

Case History Method was developed, almost four hundred years before the birth of Christ, to study the problematic children. This method is also used to collect the man related information. This method was established in the well organized manner in the last stage of tenth century. In the field of law this method was mostly used. After this, this method was adopted for use in the field of medical, Psychology and Education. The origin of this method is not old in the field of education. Teachers did not consider teaching as their main profession till now, they did not consider it important to take interest in student., but because of, in the field of education, direction, personality difference, mental health,etc, now it has become necessary to understand every student. By Case History method, the qualities, behavior, and mental development of anybody is studied. In one way Case History Method is a collection of all achieved facts, related to person.

Case history method is like a history of person. It has also been accepted as a personality measurement method. Meeting his friends, family members and others relatives, when we collect information related to any person, his life history, his domestic responsibility, interest, needs, his activities, information related to his health, all this comes under this case history method. We get a general introduction of a person by this. This is also an effective method of measurement. But its credibility is not trusted very much, because under it the information sources are such as, they do not deliver information correctly. The objective of case history method is to find out Adjustment-Problems. This method proves useful in mental hospitals. Teacher can also use cumulative record cards in the history of person. Sometimes Psychologist tries to know this, that he gets some facts from the teacher in relation of student. Psychologist or social reformer tries to know in history the following things-As name, address, domestic responsibility, occupation, material relationship, the qualities of personality although Case History Method can not be made the remedy of diseases and the basis of medical, yet it helps. This method is used to understand the uncommon people and children.

Crow and Crow—The purpose of case history is predominantly diagnostic. The merit and demerits of this method are the following—

Notes

Merits

(*i*) This method can be used in treatment education. This method is used in the treatment and the study of dull, backward, and mentally ill children.

(*ii*) Many facts are gathered from the various sources comprehensively. Therefore the conclusion can be trusted.

Demerits

(*i*) Clinical specialists are needed to use this method. Therefore this method is expensive too.

(*ii*) This method takes more time and money and labor. Therefore it is difficult to use this method in our country.

3.4 Summary

- Educational Psychology studies of the human behavior and various problems, under the educational situation. This study is done by one method. Method means the system and way, which helps us in getting a conclusion, after doing the study, analysis and explanation of human behavior. Now educational Psychology has been put in the category of science, it has followed the scientific method for its works by ignoring imagination, guess and superstitions.
- The methods of Psychological study can be divided between two groups—**(1) Internal or Subjective Method**— Under this method person analyses and explains his own behavior, as in the Introspection and anecdotal method. **(2) Outer and Objective Methods**—In this method ,facts are collected by others. There are many methods under it.

3.5 Keywords

1. **Introspection Method**—In this method a person observes and analyses his own mental activities.
2. **Observation Method**—Under, whatever is seen outwardly, is studied.

3.6 Review Questions

1. Describe the various study method of educational psychology.
2. What is the introspection method of study of educational psychology? Explain its merits and demerits.
3. What do you understand the case history method of educational psychology.

Answers: Self-Assessment

1. (×) 2. (✓) 3. (✓) 4. (×)

3.7 Further Readings

Books

1. Educational Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd. New Delhi*
2. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi*
3. Psychology—*Dr. Saryu Prasad, Agra Book Store, Agra*
4. Psychology—*The Study of Human Behavior – Brij Kumar Mishra, PHI Learning, New Delhi.*

Notes

Unit-4: The General Nature of Growth and Development

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Objectives

Introduction

4.1 Meaning of Growth and Development

4.2 Maturity

4.3 Principles of Development

4.4 Summary

4.5 Keywords

4.6 Review Questions

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Objectives

After the study of this unit, the student will be able to—

- Understand the meaning of growth and development.
- Understand what maturity is?

Introduction

The phenomenon of development of the child begins while he in the mother's womb and continues through his infancy, childhood, adolescence, adulthood and maturity. Thus he passes through the various stages of growth and the development takes place. Psychologist Hurlock has said "Development results in new characteristics and new abilities."

Development is a multi-faceted process. It includes many aspects. In the study of educational psychology, not only the child's intelligence but, for his wholesome development, physical, mental, social, emotional stages are also necessary. All these aspects of development are mutually related. While describing the development of child, the meaning of development, stages of development, structure, principle, and various aspects of development shall be considered briefly, and it will be appropriate.

4.1 Meaning of Growth and Development

The natural development of a human is called Growth. The changes that happen after the creation of embryo in the womb until his birth, is growth. Apart from this all the changes that happen after the birth till the old age, which are not affected by learning and training and are progressive, is also

Notes

growth. The nature of growth is like development but there is difference between both the thoughts. Development includes the abilities that are earned by learning and training; however growth has no importance of these factors. Liking, coming out of teeth is a growth however acquired abilities have no role to play in it. Growth has its own direction and time limit.

Educational Psychology studies the human behavior in the educational situation and its objective is to bring about the desired changes in the behavior of the child. Hence it is important for the teacher to know the changes that take place in a child as a result of growth and development. Often both these terms are thought to be synonymous as they both point towards the progress. However the psychologists have suggested some difference between the two and hence it is important to under this difference. The general meaning of growth is the increment in shape and size of the organs, weight, and height.

Notes Psychologist Frank has used the growth in terms of Cellular multiplication. As per him, "the changes that take place in any aspect of body and behavior is called Growth, and that in the human is called development."

The meaning of development is more general. When from infancy to childhood, adolescence to adulthood, the growth that is observed in the limbs of the child we say that he is growing. It is obvious from this that the growth can be weighed and measured. But sometimes we see that in spite of the growth of the limbs in the child, their ability has not increased properly then we say that there had been no development. Development of organs work - and indicates the capabilities. As it has been told that growth can be measured, however the development can only be noticed through the changes in human behavior. Hence development is the qualitative changes of a person, due to which he progresses or regresses.

In the field of psychology the meaning of development is not only growth, i.e. the height and weight increment, but it is the growth of new abilities in a human being which keep going on in a human being beginning from the early stage till maturity. In Hurlock words, "Development is not limited to growing larger, instead, it consists of the progressive series of changes towards the goal of maturity. Development results in new characteristics and new abilities on part of the individual."

Three things become clear by Hurlock's definition—

(1) Development point to change.

(2) Development takes place in a definite order.

(3) Development has a definite direction and aim.

According to Hurlock, the process of development continues throughout the life in a definite order, and every stage affects the next one.

Gesell has described the meaning of development in this fashion—"Development is more than a concept. It can be observed, appraised, and to some extent even measured in the three major manifestations (a) anatomic (b) physiologic, (c) Behavioral.... behavior signs, however, constitute the most comprehensive index of developmental status and development potentials.

According to **Meredith**—"Some writers reserve the use of 'Growth' to designate increments in size and of 'development' of mean differentiation."

Therefore we will study growth and development in the same meaning. The growth and development mean the stages from pregnancy till maturity. All the changes that a man goes through from the pregnancy till maturity, all come under development, as a result of development a man gets maturity. Maturity means getting growth and development.

Maturity, development and growth are closely related. The meaning of maturity, growth and development has been discussed further.

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4.2 Maturity

The phenomenon of development begins with the embryo creation in pregnancy and it is very rapid in the early stages. Within the pregnancy a child takes birth after maturing till certain limit. After the birth he ends in maturity finally. In development, the changes take place in an order that only point to maturity. One stage of the maturity helps a living being in developing normally. The maturity affects the development of a child majorly before birth. Every stage of growth and development is majorly affected by maturity, for example when an infant's muscle become strong enough to walk, he begins walking. Therefore maturity helps growth and development. In fact the objective of growth and development is to get maturity only.

Did u know? The development of a human happens very rapidly in the mother's womb and it continues till maturity.

The speed of growth and development becomes slower later this is the reason why the speed of growth and development is highest in the mother's womb, which is the first stage of development. And later adolescence which is the last stage of the development of the human being, it is least. Maturity is the aim of natural growth. The process of maturity goes on till the certain age of the human being. In the last stages of adolescence, means the age if 21, this process finishes. There are two aspects of the personality of a human being, are physical and mental. The natural and complete stage development and growth is called complete maturity. The stage at which these are obtained, is called old age. Hence the objective of all the stages of development is to get the old age.

The maturity and old age has an effect of learning and environment. This is why maturity shows up on different age groups among the people living in different geographical and social condition. Maturity is mainly the reason of development. Development becomes possible only by the mutual reactions of both. Learning is not possible in the absence of maturity. A certain stage of maturity is needed for learning. Therefore learning and development, both depend on maturity.

In spite of huge correlation among maturity, development and learning, all these three differ from one another. Maturity means natural development. When the development of a man's abilities happen naturally without the aid of learning and training we call it maturing, where as the development is obtained via desired and progressive changes.

The effect of maturity on the development was tested by Gesell and Thompson in 1929. This method used Co-Twin Control method. In this experiment two twin baby girls were taken. One of them was trained to climb the staircase from the age of 46 weeks till 52 weeks. The other girl was just controlled watched without any training. As a result of development with the help of training, the first girl took 26 second to climb the staircase; where as the other girl took 45 second without any training in 52nd week. Controlled 53-week old girl has been practicing move from step 2 weeks. After this the two weeks training was given to the girls who was controlled, it took only 7 seconds after the training of just 2 weeks for the controlled girl to climb the staircase in the 55th week. Therefore we can say that due to maturity, the second girl succeeded in climbing the staircase in a very less time in spite of less training compared to the first girl.

4.3 Principles of Development

What is the principle of growth, this too is important to be known. According to Garrison and others, "When a child enters into one stage of development from another, then we observe some changes in him.

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Studies have proved that these changes have a tendency to follow certain principles. These principles are called the 'Principles of Development'."

Following are the principles of development which control the process of development—

(1) Principle of Developmental Direction—As per this principle the development of the child happens from head to feet. Psychologists have called it Cephalocaudal direction according to which, the head, body and limbs develops sequentially in a child.

(2) The Principle of Continuous Growth—According to Skinner, "The principle of continuous growth only focuses on the fact that there are no sudden changes." The development does not happen with the same speed, however it continues without halt. It can sometime be slower or faster.

Task The development does not happen with the same speed. However it continues without halt. It can sometime be slower or faster. You tell us your opinion in which age it is faster and in which age it is slower?

(3) The principle of individual difference in the rate of Growth—It has been proved with the help of scientific studies that rate of development of two different people is different. The man who is taller at the time of birth will be taller as he grows. Two different children of the same age may have two different physical, mental and social development.

Self Assessment

Fill in the blanks:

1. The natural development of a man is called ..... .
2. Gesell and Thompson used ..... method to study the effect of maturity on development.
3. Development is ..... changes of the body.
4. ..... is the complete and natural stage of growth and development.

(4) The principle of development sequences—According to this system the development of a child happens in a sequence. The motor and linguistic development of a child happens in fixed sequence. He makes a special sound from the third month, he begins to laugh heartily, and from the seventh month he begins to make sounds like "Pa", "Ba", "Ma" or "Da".

(5) Principle of Interrelation—There is relation in the physical, mental and emotional sides of a child. With the physical growth, his interest, voice and concentration also changes and this makes their motor progress possible. The physical growth affects the mental growth. According to Garrison and others, "The attitude related to body focuses on the equilibrium of various organs and development."

(6) Principle of Uniform Pattern—According to this principle, the measurement of the babies in the entire human is just one, and it is, that there is no difference. Hurlock has defined this principle in this way, "Every species whether animal or human, follows, a pattern of development peculiar to that species."

(7) Principle of General to Specific Responses—In all the aspects of development, whether they are motor or they are mental, a child first gives a general response and then moves to a specific response. Hence a child moves from general responses towards specific responses. An infant first moves his entire body then he begins to move the specific organ, in order to get something, the infant not only moves his hands but his entire body, and gradually he begins to move the specific organ 'the

hands'. Hurlock has said, "In all the stages of development, a child's responses are general before they become specific."

(8) Principle of Interaction of Heredity and Environment—The development of a child happens due to the interaction between the heredity and environment. Hence, "Heredity defines the limits beyond which the child cannot develop, in the same way it has been proved that bad environment and illness at the time of birth, may harm the abilities with which a child is born with." Skinner has passed the above thoughts.

4.4 Summary

- The phenomenon of development of the child begins while he in the mother's womb and continues through his infancy, childhood, adolescence, adulthood and maturity.
- Development is a multi-faceted process. It includes many aspects. In the study of educational psychology, not only the child's intelligence but, for his wholesome development, physical, mental, social, emotional stages are also necessary.
- The natural development of a human is called Growth. The changes that happen after the creation of embryo in the womb until his birth, is growth.
- Educational Psychology studies the human behavior in the educational situation and its objective is to bring about the desired changes in the behavior of the child. Hence it is important for the teacher to know the changes that take place in a child as a result of growth and development.
- Development is the qualitative changes of a person, due to which he progresses or regresses.
- Changes are sequential in development which point towards the maturity.
- Every stage of growth and development is majorly affected by maturity, for example when an infant's muscle become strong enough to walk, he begins walking. Therefore maturity helps growth and development. In fact the objective of growth and development is to get maturity only.
- Maturity means natural development. When the development of a man's abilities happen naturally without the aid of learning and training we call it maturing, where as the development is obtained via desired and progressive changes.

4.5 Keywords

1. **Growth**—Specific development, success and progress.
2. **Heredity**—family lineage.

4.6 Review Questions

1. What do you understand by growth and development? Explain the difference between them.
2. What do you understand by maturity? Explain with example.

Answers: Self-Assessment

1. Growth	2. Co-Twins	3. Qualititative	4. Maturity

Notes

4.7 Further Readings

Books

1. Educational Psychology — *S.K. Mangal, PHI Learning Pvt. Ltd, New Delhi*
2. Development of Learner and Educational Learning Process — *A.K. Verma, Hindi Book Centre, New Delhi*
3. Importance of Education in Children and Information — *Seema Chopra, Hindi Book Centre, New Delhi*
4. Educational Psychology — *S.H. Sinha and Rachna Sharma, Atlantic Publication, New Delhi*

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Unit-5: Stages of Development

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Objectives

After the study of this unit, the student will be able to—

- Understand the importance of Infancy.
- Understand the changes that take place in the various stages of development-Infancy, Adolescence.

Introduction

A human takes birth in the form of a progressive creature, and from the beginning till the end he keeps on developing. When he enters in this world, he is not developed physically and mentally. In Educational Psychology the developing child is studied. From the point of view of Educational Psychology, dividing the child-development into various stages is considered important, and each stage is studied separately. Psychologists, from the educational point of view, have divided the child-development into three groups—

1. Infancy
2. Childhood
3. Adolescence

5.1 Importance of Infancy

Infancy is one of the most important stages among all the stages in the Human life. According to Psychologist J. Newman—''The stage till five years is very receptive for the body and the brain.''

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Whatever is taught and done at this time, have an immediate effect. Psycho-analysists have also compelled for paying special attention to infancy. **Freud** has said, "The little human being is frequently a finished product in his fourth or fifth year.".

The Psychologists have proved this very well on the basis of their tests. **Adler** has said, ''the whole sequence of life is decided by infancy."

In the twentieth century Psychologists have studied, seriously and widely, the child and the stages of his development. **Crow and Crow** has said, ''the twentieth century has come to be designed as the century of child.''

Due to this thinking of Psychologists, ''this stage can be called the basis of life, on which the future life of child is developed."

Meaning of Infancy

After the birth of child, the first six years age is called infancy. Some psychologists have defined it in the following way-

Hurlock-''this extends till two weeks from the time of birth. After two weeks babyhood begins. And extends till two years. Early childhood extends from two to six years of age.''

Above thoughts, Hurlock, the woman psychologist has expressed, that indicates towards the micro and extended meaning, in relation to infancy. Generally, all the Psychologists have considered the infancy, extendes from birth to four or five years. As Crow and Crow has written-''Infancy on the average from the birth to five six years of age, during which the sensory channel begins to function and child learns to creep, walk and speak."

According to the result of the above discussion, infancy has been studied here, considering from the birth to five or six years age.

Chief Characteristics of Infancy

In relation to the development of physical, mental, social and emotional development, infancy has some important qualities—

1. **Rapidity in physical growth**—In the first three years of child life, there is rapidity in physical growth. In the first years there is rapidity in length and weight growth. His action senses, internal parts, and muscles also develop gradually.
2. **Immaturity**—child is physically and intellectually immature at this time. And slowly and naturally he develops into maturity by upbringing.
3. **Dependency**—After birth, he lives a very miserable life till some time. He has to depend on others, to get affection and sympathy, and for the fulfillment of food and other physical needs.
4. **Instinctive behavior**—At this time child's behavior is depended on instinct. Being hungry, he cries and becomes angry. And whatever things is kept by him, he puts it in his mouth.
5. **Rapidity in mental process**—During the mental process of child, his concentration, memory, imagination, emotion, representation etc, are rapidly grown. About this time Good. N.F has said—''One half of an individual's ultimate mental status has been attained by the age of three years.''
6. **Rapidity in Learning Process**—At this time there is rapidity in learning process. Gessell has said-''In the first of six years he learns more rapidly than that of Later twelve years.
7. **Imaginativeness**—There is more quantity of imagination at this time in the child. And he sets up moving in imaginative world. Thorndike has considered—''From three to six, child is often in the stage of half vision.'' And does not know the difference between truth and false. And consequently, due to the abundance of imagination he used o tell a lie. Ross has said—''child himself becomes

hero in the imagination, and dispels the strictness of life through imagination.'' In this age child has special capability of repeating actions and words.

8. **Attitude of repetition**—he takes enjoy in doing it. On the basis of this, by the children of Kinder garten and minatory school, singing and creating repetition is done.
9. **Attitude of Learning Imitation**—Child, mostly learns sooner by the imitating method. He imitates the behavior of parents, brother-sister, and other family members in family, and learns.
10. **Learning perceptual Experience**—Due to not being matured he learns through the perception and subtle things. Gifts and educational equipment are used in the system of montationary and kinder garten school. He observes it and experiences it through sense organs.
11. **Emotional expression**—From the time of his birth, he expresses his emotions. Weeping, crying, thrashing about with the limbs are the emotional activities. According to the child psychologists-four emotions are found in the child in beginning–fear, resentment, love and pain.
12. **Feeling of self love**—child has dominant feeling of self love. He wants at this time, to get the affection of his parents and brother and sister. It being impossible, he jealousies his other brothers and sisters. Whatever toys or things are given to him, giving not to others he wants to keep it.
13. **Sexual instinct**—Freud and other Psycho-analysists have said that in this stage child's love is depended on sex instinct, and this desire is dominant, It does not highlight like young one. Child's to love his organ, to suck his toe, to suck the breast of his mother, are the indicator of his sex-instinct.
14. **Absence of Moral Feeling**—At this time child is not developed morally. He does have the knowledge of right and wrong. He does, in what he takes enjoy, even if, it may undesirable morally. By which work he get suffered, let them. Ross has said, "Later on the social environment reinforces this pleasure pain motive by administrating reward and punishment more or less systematically.
15. **Tendency of playing alone and together**—If we observe the behavior of child closely we can know that earlier he has a tendency to play alone, and Later to play with others. Crow and Crow has described this tendency thus, "the youngest child plays lonely, sooner he passes through the stage of playing with other children. At last, he experiences a great joy in playing with the same age children.''
16. **Development of Social feeling**—In the last years of infancy, social feeling is developed in him. It is the thinking of Velentine-''In the age of four or five, child has a tendency of protecting his brother and sister or companion. He likes to play with, from two to five years children. He makes others partner in his own things. And protect the rights of others, and tries to give them consolation in the time of their suffering. In human life from the point of view infancy has its great importance. Velentine has told it, "the ideal period of learning" Watson has also presented his opinion, "The scope and intensity of learning during infancy exceeded that of any other period of development."

In this age it is necessary, to pay attention, in terms of child's education, on the following things—

1. **Upbringing**—Firstly caution should be taken in child's up bringing. Nutritious food should be arranged for the development of child.
2. **Clean environment**—For the healthy development of child, the environment of house and school should be calm and clean.
3. **Attention on the personal cleanliness**—after the development of thinking they should be given the education of personal cleanliness.
4. **Affectionate behavior**—Parents should handle his child with love and affection. The effect of love and affection on his nerves and senses is good. It helps him in his development of proper direction.
5. **Encourage the main tendency**—the main tendency should not be suppressed, rather they should be guided. The effect, of the suppression of the main tendency, on the physical and mental development is bad.

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6. **Satisfaction of Curiosity—**It is always tried to satisfy the curiosity of child. All his questions should be responded with satisfaction.
7. **Opportunity for the self assertion—**child has a self assertion tendency. So parents, teachers, and guardians should give him such work to be done, by which they get the opportunity of self assertion.
8. **Learning by doing and playing—**Child is progressive from his birth. So he should be given proper chance of, by play and learning by doing. Strange has said, "child learns a lot of things on his own, of the world, by the game."
9. **Training of action and sense organ—** In the house and school, the education of development of sense organ and action organ of child should be arranged. In kinder garten and montationary school's system, attention is paid on the training of sense organ, action organ and muscles. According to them, ''sense organ is the gate of knowledge.'' Confirming this Psychologist Russo has also accepted, ''the limbs of child and eyes are the first teacher of him by these organs he can recognize, think, and remember in the age of five.''
10. **Opportunity for self expression—**The native language is the best way of self expression. Hence the guardians and teachers should tell them short stories, poetry and should recite them. And talk to them in easy language.
11. **The place of music in Education—**From the child is fond of music. He sleeps early to hear lullaby. Songs are used in child's school for educational function. There is a mental and physical development with the help of songs.
12. **Opportunity for the mental development—**Child should be given more opportunity to think. For this, it is necessary to pay attention on the development of chatting, observation, emotion, representation, imagination memorization.
13. **Pay attention on personality integration—**At the time of educating child, it is necessary to pay attention on Physical integration.
14. **Syllabus should be interesting—**Syllabus should be based on the principles of playing, action, and interest, so the system of Kinder garten and montationary school should be followed.
15. **The method of education may be creative—**At this time attention should be paid on the process of learning. Child should be educated by the medium of playing, doing and objects.
16. **Development of Social feeling—**This feeling yields within the last days of infancy. Hence the guardians and teachers should give them opportunity to visit and play with other children so that, the social feeling may develop in them very well.
17. **Opportunity for the development of good habits—**Guardians and teachers, from the beginning try to develop in them the good habits of speaking the truth, doing work on the correct time, keeping cleanliness, because these habits create our future. As Dryden has said-First we create our habits then our habits create us.
18. **Education for the moral and character development—**For this, parents and teachers should present in front of children, good ideals and conduct, because children are followers. Besides them they should be told the short stories of the ideal character, braves, politician and great men.
19. **Keep away from them punishment and fear—**A child should neither fear nor be punished on a trivial matter. Fear and punishment affect on the physical, mental, emotional, and social development. To keep him in discipline, the harmful ways of punishment should not be adopted; rather reward and punishment may be used properly.
20. **Emotional security—**The most important factor in the development of child is affection, which he gets from others, and he tries to give it to others. Besides society and guardians, even teachers should behave with the children affectionately, so that the child may also develop the feeling of love to others. Affection is greatly needed for the mental health.

Paying attention on the above discussions, the nature of child-education should be arranged.

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5.2 Stages of Development: Childhood

The second stage of human development is childhood. Child enters in childhood after infancy. Child is unfamiliar to his surrounded conditions in his infancy. His body and mind are both under undeveloped condition. While entering in the childhood he is well developed. He begins to familiarize with his atmosphere. In this stage he begins to learn education related things, as personal and social behavior that is the basis of his future, so, it is necessary to pay attention to the main qualities of child, related to physical, mental, emotional and mental development.

Importance of Childhood

Childhood begins after infancy. Upon entering into the childhood, child has been so developed that he begins to familiarize with the conditions of environment.

Psychologists have called this stage as "the creator of child''. In this stage child develops the pattern of personal, social, and education related habits, like behavior, interests, and desires, it is not easy to transform them. Throwing light on the importance of childhood, the opinion of Blair, Jones and Simpson are thus-no period during the life-cycle is more important than childhood from an educational point of view. Teachers who work at this level should understand the children, their fundamental needs, their problems, and the forces which modify and produce behavior changes.

It is clear from the above discussion of educational point of view, that childhood is an important stage of life. So for the personal development of this stage, guardians and teachers, being cautious should use all the ways and methods that may prove helpful in his natural and balanced development.

Meaning of Childhood

Generally all the Psychologists have considered from six to twelve years' age as childhood. Stability comes in the life of a child in this stage. And he prepares for further life. In the words of Hurlock-''Late childhood extends from the age of six years to the onset puberty, between eleven and twelve.

It is clear that childhood extends from six to twelve. In this stage, many changes take place in the child this age has been considered the best for the beginning of education. So, many Psychologists have said it 'Elementary school Age'. In this stage, the feeling of establishing social relationship is predominantly seen in boys and girls. They make their different community. So the Psychologists have said this 'Gang Age'.

Notes Some people have called it 'Smart Age', because at this time, more energy is seen in the child. Because of the child's involvement in games and sport, he is normally dirty and careless. It has been called the 'Dirty Age'.

Chief Characteristics of Childhood

Infancy in terms of development of the following attributes—

(1) Stability in physical and mental growth—Stability comes in the physical and mental growth in the childhood. This stage can be divided between two groups from the point of development view-six to nine, as Conservation period and ten to twelve as Consolidation period.

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In infancy and pre-childhood (6 to 9) whatever is developed naturally in the child, in late childhood (10 to 12) begins to be more determined. Their fickleness becomes less than that of infancy, and he is seen behaving like an adolescent. Ross has said childhood calling childhood as 'Pseudo Maturity'— ''Physical and mental stability is the most important quality of Childhood.''

(2) Growth in Mental ability—At this time, there is growth in the mental ability of the child. The development of Emotional expression and memory is swift. There is growth in stable memory. The interest and distraction towards the things also grows.

(3) Intensity of curiosity—Child wants to know all about the things that he is close to. At this time he does not ask, ''what is this?'' but ask ''Why is such so?''Ross has said about the tendency of child at this time. 'In Late childhood child becomes so much curious towards such things. How do these things happen, how do these things work etc, he collects a lot of information on different subjects, seeing him his elders become surprised.

(4) Feeling of Self Dependence—At this time child is not depended on others like infancy for his daily activities. He himself does his personal activities as bathing, wearing clothes, preparing for the school.

(5) Interest in construction work—children get a lot of joy in creative activities, as doing work in the orchard, preparing some things with the help of paper and wood. Girls also want to do some work in house as knitting, sewing and embroidering.

(6) Development of Acquisition Instincts—Along with the creativity works, acquisition instinct is also developed. Boys are seen collecting especially, old marbles, toys, the parts of machines and the pieces of stones, and the girls are seen collecting toys, dolls, the piece of clothes etc.

(7) Intensity of gregariousness—At this time child tries to spend his almost time with others children. Due to the intensity of gregariousness, he begins to understand, the physical and moral conditions, by which his conduct is controlled. Ross has said –''child often compulsorily, become the member any one of the community, who are regularly gathered to play good games, to do such these things, and about them elders are not to be told any things.

(8) Development of Extrovert Tendency—In infancy child is introvert. He takes interest within himself and lover of nature. But at this time he takes interest in going outside, looking external things, in knowing about other persons. Being an extrovert, he adjusts himself in the society.

(9) Interest in Group game—Under this stage, the tendency of taking part in group game is excessively developed. Game is the most important instinct of this stage. Psychologists have presented their opinion, in relation of this—

Karlgroos—''A person prepares his destiny by the game.''

Stanely Hall—''The game of children is a revision of those works, which their ancestors have done, in the beginning of creation.''

Spencer—''child spends his spare energy by games.''

At this time girls also like to play with the boys. And the feeling of friendship is seen to be developed among them. There is also a difference between the games of boys and girls.

(10) Social and Moral Development—At this time child spends most of the times with his group members. And always ready to obey commands obtained from the group. His behavior is depended on the appreciation and criticism of others. There are many social virtues developed in them, as-obedience, co-corporation, good feeling, and patience. The opinion of Strange related to this is thus- '' In the age six, seven and eight, the knowledge of good and bad, impartial behavior, honesty and the feelings of social values begin to develop in children.''

(11) Dormant Sex Impulse—According to the Psychologist, since birth the sex instinct begins to develop in the child, but at this time the feelings of self love, and hatred towards parents diminish and the feeling of homo sexual love is arisen. The feeling of companionship is developed among boys and boys and girls and girls.

Nature of Education in Childhood

Notes

Childhood is the basis of child's life. So it is necessary to keep in mind the qualities of all sides of the development of child, then the nature of education may be decided. There is a close relationship between education and development. Education is a process of development, that is cleared by the meaning and different definitions of education. The responsibility of child's education is on the parents, teachers and society. So it is necessary to pay attention on the following points in deciding the nature of his education.

(1) Attention on the Physical Development—It has been said that Healthy brain is developed in healthy body. So from this point of view, it is necessary to pay attention on the physical development of child. Nutritious food and the opportunity of playing game should be given to them to keep them healthy.

Educational Psychologists have given importance to the activities in the education of child. Physically activity in schools and sports and exercise should give a prominent place.

(2) Children Psychology—Parents, Guardians, and teachers should have the knowledge of Children-Psychology, so that they may give them proper education.

(3) Attention on the Language—Attention should be paid on the knowledge of the language of the child, for this we should talk to them on the proper matter, tell them stories, give them magazines to read, should encourage them to take part in speech, debates and short stories competition in the school.

(4) Syllabus—Such subjects should be kept in the syllabus that are according to the interest of child, and related to his life. Syllabus should not be uninteresting and mechanical, he should not be loaded with the burden of many subjects and books, otherwise he manages to pass the exams by mugging up however it does not help him in this mental development.

(5) Education Method—In childhood education method should be interesting and based on the work and play method. Changes should take place in the educational method according to the interest of child. In modern Education system include kinder garten, Montessori basic project, Dalten etc activities and the education systems based on the work and play method.

(6) Education by Work and play—Playing is the natural and easy tendency of child. Educational-Psychologists have given importance to work and play in the education. The work is done by game helps in the physical, mental and social development of child. Playing method gives the child, the capability of learning with excitement and pleasure.

(7) Attention on the mental condition—Intellectual environment should be given for the mental development of children. At home and school they should be given all the needed ways and material, which could help them in mental progress. Child learns soon by following. For this, parents and teachers should present the behavior of good ideals and conduct. Under the mental development, intellectual capabilities of mind, the development of memorization, imagination, rumination, discussion, decision etc are included. They should be given the proper opportunity for the development of mind, that should encourage their curiosity and present new problem in front of them, so that they could use their memory, imagination, rumination, discussion and decision power.

(8) Attention on the emotional expression—It is necessary to give proper attention to their main instinct for the emotional development of children in childhood. There is an effect of emotion on physical and mental development. From this time education should be given to control undesirable emotions as-jealousy, resentment, hatred. For this, parents, teachers should behave with them with love and full of sympathy. Their emotion should not be suppressed which produce complexity in them. According to Strang— ''Child should be helped in completing his emotion obtained by social acceptance instead of suppressing them. Emotional feelings and their expression are the basis of whole of their life.''

(9) Encourage the tendency of curiosity—At this time child has predominant tendency of curiosity. He excites to know about each new thing. And 'how' etc, ask many questions. Hence Parents, teachers should give proper and appropriate responses to each of his things, so that his curiosity may be satisfied. After igniting up his zeal, new useful things can be taught. Thus, he himself gains knowledge.

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(10) Pay attention on the creative instincts—This instinct can be seen clearly in the child from the beginning. As constructing the house with the help of sands and dust, create new things with the help of pieces of wood etc. So, different kinds of creativity acts should be arranged in the school, as under the creativity work, preparing any new things with paper, woods, dust, and to give the education of home science and craft in the reading subjects.

(11) Encourage the tendency of collection—In children the tendency of collection is found. Whatever things does he like, he collects them, so parents and teachers should inspire him to collect education related things, late tickets, coins, toys, pictures, books and other natural things etc.

(12) Satisfaction of community tendency—The tendency to live in the group is predominant in childhood. He does not like to live alone. He likes more to visit and to do work with other children and companions. And he also lives pleasantly with it. So for the development of community tendency he should be provided the opportunity and order of becoming the member of child convention, in the social activities, to take part in the scout boys and girls. In the school community activities' games should be properly arranged.

(13) The arrangement of complementary syllabus activities—For the development of mental and social abilities extra curricular activities should be arranged. Under this, nature expedition, wandering, sarasvati travelling, and other cultural program should be arranged time to time.

(14) Development of social qualities—In childhood, after family, the socialization of child happens in the school. So it is the duty of teacher that he creates such an environment in the class, school and play ground, which makes the child develop socially healthy. In school, such activities should be arranged, which help in the development of the social qualities in the child like discipline, self confidence, responsibility, obedience, humility, corporation, sympathy, and competition etc.

(15) Moral education—Moral education should be arranged regularly to give the knowledge of rules, limitation and moral values of society.

5.3 Stages of Development: Adolescence

The third stage of human development is adolescence. It starts in the end of childhood and finishes in the beginning of adulthood. Physical, mental, social, and emotional changes take place in this age. They are very important from the point of view of personal development. Hence from the educational point of view, it is necessary to study the important qualities of adolescence and to ponder over the nature of education in adolescence.

Significance of Adolescence

In the stages of the development of human life, there in an important place of adolescence. This is the most complicated time of life. This time, child is in the transitional period of childhood and old age, because child lives between both of the ages. So neither he is considered child nor old. In this changing time, parents, teachers and guardians, and other persons, who keep interest in the goodness, welfare of future and present of child, and want the progress of society, should ponder seriously on the healthy development of all of those adolescents. As **Crow & Crow** has said, "Youth represents the energy of the present and the hope of future."

So it is clear that the guardians and the teachers should have all the information about the growing potentialities of development and interests and needs and the important qualities of growing adolescence, so that they could contribute properly in their development. From the educational point of view, it has been written on the importance of adolescence in the Haido Committee Report—''There is a tide which begins to rise in the vein of you that the age of eleven or twelve. It is called by the name of adolescence. If that tide can be taken at the flood, and a new voyage begun in the strength and along the flow of its current, we think that it will move on to fortune."

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Today in the colleges, in the secondary, higher secondary, graduation classes most of the students are under the adolescence stage. In the current age, students problems, related to discipline has adopted a broad form. So it is very important and necessary to study its qualities for determining the nature of education, giving the proper direction to these adults for their, physical, mental, social, emotional and moral powers.

Meaning of Adolescence

In English teenage is called Adolescence. This word has been made of Latin language's verb 'Adolescere'. It means to grow to maturity. According to **Blair Jones and Simpson**—''Adolescence is that period in the life of every person, which begins in the last of childhood, and come to an end in the beginning of adulthood.'' Other western scientists have defined the adolescence in the following way—

According to **Jarshield**—''Adolescence is a period through which, a growing person makes transition from childhood to maturity."

According to **Stenley Hall**—Adolescence is a period of great stress and strain storm and strike.

It is clear that Adolescence is the stage of development, that is started from blooming, and being risen to maturity it comes to an end.

Generally this stage is considered from twelve to eighteen, some differences are found among the different countries, in the period of the development of adolescence, due to, personality differences, culture, and climate. Adolescence is started soon in hot state than that of cold. The beginning of adolescence, in the girls is almost two years early than the boys.

Some Psychologists have divided it between two groups.

(1) **Early adolescence** from twelve to sixteen years.

(2) **Late adolescence** from seventeen to nineteen.

Seventeen years is the dividing point of both. As that **Hurlock** has said—''The dividing lines between early and late adolescence is placed around seventeen.''

The period between late childhood and adolescence is called early adolescence. Child is not complete adult at this time, but changes are seen in his behavior, instinct, and attitude. Early adolescence has been called **'the stage of a big problem**.' because parents, guardians and teachers rebuke and prevent him on different matters. He always lives in the problematic condition. What may he do?

Early Adolescence has been '**The period of extreme fast and swift development**'. Along with the physical development, swiftness comes in all the sides of development.

Stenley Hall has said about early development ' an extreme stage of emotional confusion, unhappiness and human tension'. Some Psychologists have called it 'A naughty and Problem age.' According to the Psychologists- for the easiness and the comfort of the study, adolescence should be considered from twelve, thirteen to eighteen, nineteen years.

Did u know? Adolescence begins soon in hot countries than that of cold countries. The beginning of adolescence in girls is soon than that of boys.

Theories of development of Adolescence

There is the two theories for the development of adolescence—

(1) Theories of Saltatory Development—Stenley hall has accepted this theory in his book 'Adolescence'. He has said that there are revolutionary changes take place in adults suddenly, which are not related to

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the infancy and childhood. In the words of Stenley Hall, ''Whatever changes happen in boys and girls, they come to leap in a moment.''

(2) Theory of Gradual Development—The followers of this theory are **Thorndike, King and Hallingworth**. They have said—"Whatever newness is seen due to physical, mental, and emotional changes in the adults, those changes come in a sequence not in a moment." In this relation King has said, ''As the sign of the arrival of a season is seen, so the childhood and adolescence is related to one-another.''

Chief Characteristics of Adolescence

Biggi and **Hunt** have written related to the qualities of Adolescence, "The one word best characterizes adolescence is change. The change is physiological, sociological, psychological.

Adolescence has following characteristics, related to the changes, given in the definition:

(1) Bodily Changes—Many important bodily changes take place in adolescence. At this time physically point of view, the symptom of young age is seen, girls are grownup to womanhood and boys are grownup to manhood. From the physical point of view maturity comes in the girls and boys.

(2) Mental Development—In adolescence along with the physical changes, mental capability grows. These characteristics are specially found in that as, imagination, memorization, excess of day dreaming, discussion, increment in determination power and opposite moods.

(3) Lack of Stability and Adjustment—At this time the mental condition of adult is unstable like a baby. Ross has said adolescence 'Recapitulation of infancy'. At this time changes happen him with such swiftness, that sometimes he thinks this and sometimes that. His mental condition is unstable. Consequently he finds himself unable to adjust with the situation.

(4) Emotional Life—The life of adult is very emotional. He resolves to do uncommon and impossible work in emotional condition. Sometimes he is filled with unique zeal. And sometimes he is seen discouraged.

(5) Contrasting Mental Moods—In adults contrasting mental moods sometimes make him selfish and other time selfless. Due to this reason he is not able to adjust in the emotional life. Adolescence is the recapitulation of beginning childhood on higher level. Intellectually he is better than child, but he lives in more confusion and disordered emotionally. He becomes unpleasant on a trivial matter. Sometimes he is seen happy and smiling and other times sad, worried and distressed.

(6) Mental Independence and Revolt to Authority—Under this age, the feeling of mental independence is predominant. Adult does not want to live in the limitation of elder's order, various traditions, and rituals superstition. This does not satisfy him. Rather 'how it is' he wants to satisfy this. At this time his no taken for granted attitude is seen.

(7) Maximum Development of Intelligence—In adolescence the intellectual knowledge reaches on its highest point. It is the saying of Psychologists till the age of sixteen there is growth in mental age, mental age is known by intellectual tests. For the completeness of intellectual development, the capability of doing followings works comes in adult—

(1) Capacity of abstract thinking on the basis of concepts.

(2) Capacity of discussion and decision.

(3) Capacity of concentration.

(4) Capacity of memory span.

(5) Capacity of creative imagination.

(8) Changes in Interests—In adolescence along with the changes in physical and mental, the changes take place in their interests also. There is also a similarity in the interests of boys and girls. Diversity

is also found in them. In both of them the tendencies of reading magazines, stories, fiction, novels and taking part in music ,drawing, drama, watching movie, hearing radio, and trying to make their body beautiful etc can be seen also. In boys, taking interest in playing game, exercise, wandering, and doing adventurous work. The interests of the girls are seen in embroidering, dancing, music, to make their body beautiful with the ornaments.

(9) Development of Sex Instincts—Sexual Instinct is also arisen in adolescence. Psychologists Ross has followed the comment of Slaster—''Sex is the fundamental factor of adolescence, if not of all life, like the overflow of great river, it irrigates and fertilizers great tracks of life's territory.

Undoubtedly the central fact of adolescence is Sexual development. It is the consideration of Dr Jones- The sexual history of infancy is recapitulated in adolescence. The repressed sex impulse of infancy which is in sleep in infancy, is awaken again. Due to the development of this stage, restlessness, biting the nails of hand, keeping the pencil in mouth are seen in the boys and in the girls, to wrap the shawl in her hand etc behavior are seen. The development of this tendency happens in three stages-

(a) Self Love—in the beginning this feeling is seen in the form of self love. He tries his best to make himself attractive. He looks himself, makes up himself, does not understand any one likes him; takes enjoy within himself, and loves himself. Freud has said this condition Narcissism.

(b) Homo Sexual Feeling—After the stage of self love, boy with boys, and girl with the girls, attracts and establishes closeness and friendship. This closeness can be seen in wandering together, talking to each other for long hours.

(c) Hetero-Sexual Feeling—At last in late adolescence, Due to, this feeling boys and girls attract and take interest toward each other. They are interested in visiting, talking, wandering and living together.

Here it is appropriate to say that these three stages of sexual development come at the fixed time one after another rather than living together.

(10) Attitude of Dependence—In the infancy, child is depended on his parents for each of his works. He considers himself reserved in the absence of his parents. In adolescence this condition is seen again like infancy. It is not necessary that this dependence is towards his parents; rather it can be towards that brave man, who is found in real life, in literature, and in history. Being affected towards the ideal virtues of these great men he becomes the follower of these ideals. And keeps faith towards them and worship them. So adolescence is also called 'Hero-worship age'. The conduct of boys and girls are developed, taking the advantage of hero worship tendency.

(11) Religious Feeling—According to the above descriptive dependence tendency, religious feeling is risen in the youth, being affected by some aspect of the god, he believes in the existence of god. The enlightenment of religious feeling is in the form of patience, self control, sense of duty, and social service.

(12) Feeling of Social Service—There is the predominant feeling of social service in this age. In this relation Ross has said-''Adult develop and nurture the ideal of society. His kind heart is inspired by the love of human being. And he is always anxious for giving help in the development of ideal society.''

(13) Exuberance of Imagination—Adult is extremely imaginative. In the practical life he finds himself unable in fulfilling his dream. Consequently he begins to fulfill his dream not in the real life but in the imaginative world. He dives in the imaginative world on a trivial matter. Due to the predominance of imagination in this age he has a tendency of day dreaming. Due to the excess of this tendency he becomes self centered and introvert. Sometimes there is loss from this tendency. Socially opposite feeling originates in some adults. They begin to behave illogical and immoral and often become child convict. Sometimes, due to the imagination and day dreaming, adult expresses his creative imagination power and beauty in literature, music and vivid arts. They show their interest in performing role and in writing stories and fiction. By the sublimation of imagination tendency, the development of artistic power is possible in them, and they can be made poets, artists, storywriter, novel writer, dramatist, painters and musicians.

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(14) The Feeling of Altruism— The selfishness of infancy takes the form of altruism in the adolescence. The feeling of abundance and sacrifice is predominantly seen in adult. He does not hesitate in giving up his life for the welfare of society and country. At this there is unique zeal and strength in them that gives birth to altruism. The history of world is the spectator of these things, being inspired to this feeling; adults gave challenge to the death to improve the evils of the society and the nation.

(15) Feeling of Self Respect— In adolescence, the feeling of self respect is predominant. They understand themselves insulted by the slightest things. So they should be guided properly with love and sympathy, instead of behaving with them unpsychologically. Due to the feeling of self respect, the feelings of dependence and the feeling of passing independent life is awaken. Sometimes due to this, they receive the shock to their self respect, the tendency of running away from home yield in them and they have to face many sufferings. Some examples can be given that due to the tendency of running away from home many people can be seen doing progress in life.

(16) Development of Criminal Tendency— Under this stage, due to the obstacles in filling desire, hopelessness, and getting failure, the tendency of criminal is developed in them. In this relation Valentine has said-''Adolescence is the delicate period, for the development of criminal tendency. A huge counting of experienced criminals began to take their occupational life seriously in the adolescence.''

(17) Development of Gregarious Tendency— Adults boys and girls like very much to live with their companions and friends. Often they are the members of some community, and give greater importance to their community than school and family. The community which they are related to, their all activities are affected. They adopt the methods of language, moral values, habits of wearing clothes, having food according to the community. There is a special status of the adult belonging to the community, and they work according to it. The work and the condition of community contribute in determining their destiny.

(18) Extrovert Tendency— In adolescence, adults are extrovert again. Their physical, mental and social interests are developed extendedly. They take interest in activities of the surrounding environment. They want to participate in the different program of colleges and society. Due to the tendency of being extrovert they develop the virtues of self dependence, self control, corporation, the feeling of altruism.

(19) Anxiety of Vocational Selection— In this age, adult begins to get anxious about his future vocation. He begins to imagine to be a skillful doctor, engineer, lawyer, teacher, artist and a successful farmer and good life. He chooses his subjects according to the vocation.

After above discussion we reach on the conclusion that there are many new characteristics of child that are seen in the adolescence. Stenly Hall has commented on this-''Adolescence is a new birth, for the higher and more completely human traits are new born.''

Observation of the behavior in the adolescence

Adolescence is the stage of transition, in which child is neither a child nor an old. Generally it can be divided between two parts, early adolescence and late adolescence. Early adolescence is that period of life, which is called the period of storm and confusion. There is no doubt in it that in this age he is conflicted with his parents, teachers and friends. His emotionality is grown in comparison of childhood. And it is difficult to live with it , they consider that old person aims at them for criticizing, insulting, and depreciating. After studying the behavior of adults following symptoms come—

1. New adults are unstable.
2. There are many complications in front of them.
3. New adults are sad and unsatisfied.
4. In new adults, there is predominance of – anger, fear, frustration, jealousy, affection, curiosity etc.
5. Now social behavior is changed.
6. They are progressive in making crowds and friends group, creating groups and parties.

7. Opposite sexual love is found in them.
8. The feeling of homo sexual is also found in them.
9. In adults imagination is in abundance.
10. The feeling of self is predominant in them.

To study their behavior, a brief questionnaire can be prepared including their brief introduction and their main problems etc.

Self-Assessment

Choose the correct alternative:

1. ''The whole sequence of life is determined by infancy'' Who has given this definition of infancy—
   (a) Freud (b) Hurlock (c) Adler
2. "Child in first six years learns double than the after twelve years.'' In the learning process whose thought are these-
   (a) Gesell (b) Crow & Crow (c) Hurlock
3. Who has said infancy ''the ideal of learning''—
   (a) J. S. Ross (b) Valentine (c) Strang

Nature of Education in Adolescence

It has been cleared after studying the main characteristics and the development related to changes. that it is the most delicate and complicated time of life. At this time in adults there are revolutionary changes that take place, from physical and mental point of view. In this age he can be good, bad, lover of country and traitor, religious and irreligious, hard working and lazy, civil, humble and social or uncivilized, rude etc. so proper guidance is very important for adults. So it is the duty of parents, guardians, teachers to arrange well planned and proper Education, for the development of coming future of adults. In this relation, the sentences of **Valentine** is mentioned—''After long preaching on the part of Psychologist, the great importance of the period of adolescence from an educational point of view is at last being widely recognized.''

The nature of education is decided according to the physical, mental, emotional, and social needs. It is necessary to pay attention on the following point related to this—

(1) Education for Physical Development—In adolescence, the development of body is swift. So first of all we should pay attention on the body this time. The arrangement should be in both of the places, school and house, to keep body healthy and powerful. For that, it is necessary to do the arrangement of nutritious food, healthy education, different kinds of exercises, and games. In the colleges, exercises and games related activities like exercise, wrestling, football, hockey, volleyball, kabaddi and other exercises should be arranged in the physical and motor development of the adults. With the help of these ,good physical health and cleanliness related habits are created and developed in them. The development of other side depends on the healthy physical development. Adults should be taken for wandering, travelling, picnic, and nature expedition.

(2) Education for the Mental Development—In adolescence according to the characteristics of mental development, the development of adults' intellectual power, observation power, discussion power, rumination power, memory, and imagination power can be done as per their interest, taste, ability and capacity. For this, in education, these things should be placed.

(a) In the syllabus, science, literature, history, geography, and changing subject should be placed.

(b) In the college library, speech room, laboratory, collection room should be provided.

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(c) For the satisfaction of curiosity of adult, and for the training of observation power, and to teach the reading subjects, adults should be taken to natural and historical places for wandering.

(d) Taking the advantage of their interests, imaginations, day dreaming, and emotions, they could be engaged in literature, music, art, and scientific researches. For this, travelling, debate, literature convention, reading, change of curriculum activities should be arranged.

(e) Language—knowledge is closely related to mental development. So in the colleges they should practice to talk and write purely and special attention should be paid on their pronunciation.

(3) Education for the Emotional Development—Under adolescence, there is confusion in the emotional life of adults. Adults are seen unable to control the new feelings, and emotions. He keeps in conflict with different kinds of emotions. In these emotions, some of them are good and some are bad. Sometimes they have to face such conditions that they do not understand their duty. Under such condition they look sad and disappointed. And become the victim of mental complexities. Repressing and changing way of their wretched and distressed emotions, proper and better emotion can be developed.

(a) Education should be given for the sublimation of emotions and main instincts. This is the best method to train the emotions. The nature of the publication of the emotions is changed by this method. For this, his interest in literature, music, and cultural program should be awaken. The sexual instinct of poet Kalidas, changing in to love for literature, is the example of the sublimation of emotions. Taking the advantage of sexual instinct in adults, courtesy, artistic interest, goods habits, can be developed.

(b) Taking the advantage of Hero worship feeling and the tendency of idealism, character building and beautiful stable feelings can be developed. For this, the biographies of great men, and good literature should be given to them to read.

(c) Proper environment should be provided to them for giving moral and religious education.

(d) It is necessary for the guardians and the parents to study the emotions of adults for giving them emotional education.

(4) Education for the Social Development—An important work of the education is to develop the social feeling. Without the social development, a person cannot establish adjustment in his atmosphere. Extra curricular activities of school, magazines, akashvani etc have a great impact on the social development. Keeping the social development in mind, it is necessary to pay attention on the following things in education—

(a) To give the knowledge of social adjustment.

(b) To give importance to group morality and to do efforts for the development of characteristics leadership, zeal, corporation, sympathy, goodwill in them.

(c) To develop the feeling of friendship.

(d) To develop the feeling of healthy competition.

(e) To do the arrangement of group extra curricular program, and encourage them to take part in them.

(f) To introduce with his country, society, and human culture.

(5) Religious and Moral Education—Good ideals, behavior and conduct should be presented in front of them for the development of moral character. Ross has said-'' Moral conduct is highly developed, when behavior, social appreciation, is directed by ideals not blames.'' In adolescence, continued opposite thoughts arise in mind. Adolescent does differentiate between proper and improper. So in the college he should be given moral education.

(6) Education on the Basis of Personality Differences—According to the capacity, ability, interest and liking of adolescent, various kinds of syllabus should be arranged, for the education of adolescent in the colleges. Along with this Educational guidance and Vocation guidance should also arranged in the colleges and syllabus include such subjects, by which, in future he can choose any occupation as per his interest and need.

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(7) The use of Proper Education Method—The tendency of own observation, discussion, thinking and rumination is grown in the adolescent. Adolescent is neither satisfied, nor benefitted by the methods of giving traditional education. So Mr. Ross has said, "The training of the subjects should be practical, and it should establish direct relationship with the daily life.

(8) Need of Sexual Education—In adolescence, most of the problems are related to this tendency. In Indian families, even a bit of attention is not paid for giving this kind of education, because shyness and hesitation is felt on the discussion of this matter. Consequently, the effect, of ignorance of this subject, on the boys and girls, is bad. It is the thinking of modern scientist-'' In adolescent, for guiding the sexual tendency in a proper way, it is necessary to give them proper education properly. Expressing his opinion on the need and method of this education Mr. Ross has said-'' Nobody can refuse the necessity of sexual education. There is need of this thing, that adolescent should be guided by such an adult, in who he confides fully.''

(9) Sympathize Behavior—Due to different changes happening in the adolescence, the different problems arise with which, adolescent always lives in a confusing condition. His complication and for the solution of his problem, parents, guardians, and teachers should behave with him sympathetically. Under this stage adolescent does not like controls and imprisonments, given by his elders. He wants freedom for doing his work. So giving him the responsibility of doing his work independently, an opportunity should be provided to him.

Role of Teacher in Adolescence

Adolescence has been called the stage of tension and confusion. It is the age, when adolescent is neither a child, nor a complete adult. It has been called the stage of changes. There is abundance of changes in this stage. There are many physical and mental changes in this age. The nature of their moral, social, and emotional life is changed in this age.

This stage has important place in the development of human life. There are many revolutionary changes in this age. Bigge and Hunt—''The one word which best characteristic adolescence is change. The change is philosophical, sociological and psychological."

There is a new power and unique energy in the adolescent boys and girls under the adolescence. New ambitions begin to rise in them in new form. New drives and feelings drive them. Their interests are changed according to the change in their mind and body. The sign of adults indicate in them, and imaginations fill their mind. Due to the physical changes, their emotional balance becomes non existent. Restlessness and instability creep in them. Tension and conflict originate in them. So in this condition, it is the responsibility of teacher, by giving his proper contribution, he may guide them. Behaving as a friend, he pacifies their curiosity. And give them different kinds of education.

(1) The Arrangement of Physical Education—In adolescence, there are many changes in the body of adolescent boys and girls. So in this condition it is the duty of teacher that he shall be made aware of the balanced development of their body. For this, physical education should be made a compulsory subject. Along with guardians, their parents should be inspired for giving good nutritious food.

(2) Education of Social Awareness—In adolescence the tendency of social awareness, and cooperativeness in every task is found in high intensity. So here it is responsibility of teacher that in such condition he may develop the best qualities as, corporation, love, sense of duty, honesty, and sympathy in them. In the college they should organize such community, by which they can receive the above qualities, as the member of that society. In it, the creative role of group games, scouting, travelling, NCC, NNS, etc is admirable. So in the college, adolescent should be given natural, effective and democratic environment. Only then the social awaking is possible in proper way. Abled, courtesy, controlled, full of sympathy, corporative, affectionate, tender, and aware for his duty, teacher, can give important corporation in the well being and social development of adolescents. According to Strang, ''The daily contact of a teacher, who is realistic, social, receptive and able, corporate very much in the social development of a child."

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(3) Emotional Education—There is abundance of emotions in adolescent. He expresses different kinds of behavior on different occasion. According to B. N. Jha—"There is so much difference in the emotional development of adolescent that adolescent can express different kind of behavior on different occasion under a condition. The condition that makes him pleasant on one moment, the same condition makes him unhappy on the other moment.'' Along with this, due to the predominance of sexual instinct, the emotion of love is very intense. According to B.N. Jha-"In adolescent, the sexual instinct is so intense that it affects differently on their emotional behavior.'' Teacher's role, in the balanced emotional development of child, is important. After the family, teacher is the important person who affects much the emotional behavior of the child. Teacher can develop in them the desirable emotions, by presenting good examples, expressing the desire of following good ideals and by creating the good environment, and can prevent the growing of undesirable emotions. Thus, teacher can develop an ideal character by developing in them good habits. So it is necessary, that the behavior of teacher towards the adolescent, should be affectionate, sympathetic, tender and delicate.

(4) Mental Development—In adolescence like the physical changes, mental changes are also intense. Woodbirth has considered—''the mental development of person is on its highest point in the stage of fifteen to twenty.'' According to B. N. Jha—"As far as in the relation of intellectual development, under the adolescent, it reaches on its highest point." So it is necessary that the teacher should have full knowledge about the mental development of adolescents. Teacher should have proper attention for the physical health of adolescent. They should be given special education about the development of body and health by teaching. The arrangement of games and practice of the exercise etc should also be done. To encourage the tendency to follow, collect, curiosity, by the teacher good habits should be developed in adolescents. People should give occupational direction, on the basis of mental abilities, inclination and interest, by which he can determine his future.

(5) Language Development—Language is a powerful way to express feelings. A person conveys his feelings and thought to some one else with the help of it. The development of the language is very important in the social and emotional development of the adolescents. In adolescence, the vocabulary of the adolescents becomes very strong. According to the standards published by Stanford Binet Scale, the choice of selection of words of the adolescents grows in the following way, nine thousand words at the age of 14, eleven thousand and seven hundred words at the age of 16, thirteen thousand five hundred words at the age of 18. The ability of selection of words of the adolescents of high social and economical order happens better than those of poor socio-economical status. In this stage, because of the abundance of imagination, the interest in story, poetry and literature become dominant, which helps in the development of the language. Hence it is important that the teacher shall introduce to them good literature and encourage them to study it, so that not only good language skill develop in them, but good thoughts take shape in their thinking. This healthy thinking is the basis of their future life.

(6) Arranging Programs for the Intellectual Activities—In adolescence, boys and girls develop greatly. Hence the teacher shall be effortful for their intellectual development. Like exercise is important for the development of the body, in the same way, the intellectual exercise is necessary for the intellectual development in the schools, like questionnaire, debate, riddles, speech, poetry, and essay writing shall be arranged. With the help of the intellectual tests, these activities can be contributed. Often all the psychologists have accepted that intellectual tests give important information about the learning. These tests are important for the knowledge of the various subject abilities of adolescents. A successful shall know all these aspects in great deal.

(7) Sexual Education—Sexual education is an important education in adolescence. Because are physical changes in this stage, as a result of which there is storm of sexual feelings. At the root of various problems of the adolescents, there is sexual instinct. Therefore there is instability in their emotions and behavior and interests. Hence the teacher shall impart the sex education to the adolescents so that it develops a healthy attitude in them regarding sex. The beginning of adolescence produces fear and doubt in the adolescents. Adolescents have night fall which excrete their sperm. Girls have menstrual cycle, because of which their blood excretes, and because of having no knowledge of these activities, both, boys and

girls are anxious. And they regard it as a disease. Hence in this stage, boys before night fall, and the girls before the menstrual cycle, shall be taught about the structure and the working of sexual organs. And with the help of this, a healthy attitude shall be developed in the boys and girls for the opposite gender. They shall also be taught the process of intercourse. But the nature of the education shall not be arousing. The teacher should deploy the youth in kinds of the works which may transform the sexual energy, like literature, music, art and social welfare etc.

Notes After the intellectual debates of the late years of the last century, the government has emphasized the need to include the sexual education in the school curriculum. Present your opinion discussing its positive and negative outcomes.

(8) The Use of proper education methods—The physical and mental development is on peak in adolescence. Hence the teacher shall use such methods of education, that the boys and girls get an opportunity to test, practice, and the ability to debate by themselves. Even in this stage do and learn shall be focused. In this way the imagination also develops in the adolescents. Hence the teacher can use it in teaching. He shall be given the opportunities to express himself. For this, extracurricular activities shall be given the due attention. With the help of above methods, this stage can be guided properly. It is the responsibility of the teacher to develop the self-contol and discipline in the students.

(9) The proper conduct of the teacher—the teacher is an ideal for the student. His conduct affects the students greatly. An adolescent shall not be treated like a baby. Many teachers, guardian and parents think adolescents as babies which irritates them. Hence the teacher needs to behave with them in sympathetic and mature way, so that their emotional behavior is stable. It is necessary to give them the moral education in the state of mental conflict. The moral education shall be practical instead of based on principles. For this the teacher shall lead by examples rather than preaching.

(10) The Educational Travelling and life philosophy—In this stage, the teachers shall arrange the educational tours so that it helps the moral, social and mental development of the adolescents. In the beginning of adolescence there is no definite aim towards life. He feels weal-woe, zeal and disappointment, and moral-immoral, mutually opposite feelings. In this way, he wishes to develop his life philosophy after the mental conflict. Hence the teacher needs to give them the knowledge of life philosophy.

5.4 Summary

- A human takes birth in the form of a progressive creature, and from the beginning till the end he keeps on developing.
- In Educational Psychology the developing child is studied. From the point of view of Educational Psychology, dividing the child-development into various stages is considered important, and each stage is studied separately. Educational organizations from the child psychiatrist - development is divided into the following three parts - (1) infant (2) childhood (3) adolescence.
- Infancy is the most important stage among all the stages of human development. Psychologists have said that "infancy decides the entire sequence of human life." In the infancy physical, mental, social and emotional development happens with a rapid pace. In the last years of infancy, social feelings develop. From the point of view of education, infancy is the most important phase of life.
- The second stage of human development is childhood. Child enters in childhood after infancy. Child is unfamiliar to his surrounded conditions in his infancy. His body and mind are both under undeveloped condition. While entering in the childhood he is well developed. He begins to familiarize with his atmosphere. In this stage he begins to learn education related things, as personal and social

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behavior that is the basis of his future, so, it is necessary to pay attention to the main qualities of child, related to physical, mental, emotional and mental development.

- The third stage of human development is adolescence. It starts in the end of childhood and finishes in the beginning of adulthood. Physical, mental, social, and emotional changes take place in this age. They are very important from the point of view of personal development. This is the most complicated time of life. This time, child is in the transitional period of childhood and old age.

5.5 Keywords

1. **Action Senses**—The organs with which the actions are performed like hand, eye and speech etc.
2. **Knowledge Senses**—the senses that help in knowing the matter like eyes, ear, nose etc.

5.6 Review Questions

1. "Infancy decides the entire sequence of human life." Describe the importance of infancy in light of this statement.
2. What are the importance aspects in related to the education of the infants?
3. Throw some light on the important points of the physical and mental changes in adolescence.

Answers: Self-Assessment

(1) (c) (2) (a) (3) (b)

5.7 Further Readings

1. Psychology—*Dr. Saryu Prasad, Agra Book Store, Agra*
2. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi*
3. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi*
4. Psychology—*A study of Human Behavior: Brij Kumar Mishra, PHI Learning, New Delhi*

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Unit-6: Learning

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Objectives

After the study of this unit, students will be able to—

- Understand the nature of learning.
- Know the process and characteristics of learning.
- Understand the different types of learning.

Introduction

Man is a learning creature, and learning process begins not only since his birth but also in the womb of his mother. In Mahabharata brave Abhimanyu obtained the knowledge, of breaking the ring shaped formation of troops, in the womb of his mother. This is the direct instance of learning. Learning is a life long process. Man learns throughout his whole life. In the beginning, infant is helpless and dependent on others, but slowly he tries to adjust himself according to the atmosphere. In this adjustment, he tries to take the advantages by the experiences of the process, which is called learning by the Psychologists. Learning is an important subject in the study of Educational Psychology. First the word 'Know' was used for learning.

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6.1 Nature of Learning

Learning is an extensive word. Learning depends on the inborn responses. Being inspired by the inborn instinct, a man does whatever activities there are for the adjustment of his situation. According to the Psychologists- Learning is a mental process. A mental process is expressed by the behavior. A man is changed and refined on the basis of the experiences in his behavior. Two factors are included in the process of learning—maturity and ability to take the advantage from the earlier experiences. For example, if a burning stove is kept in front of a baby, he touches it because of his curiosity, as soon as he touches it, his hand burns; he draws away his hand rapidly. Then he does not go by the side of it any time, because he has learnt by his experience that fire will burn him. Thus, Learning is the progressive change in the behavior by the earlier experiences. On the basis of this, we can say that learning is an education. Learning and Education, the both indicate the same process. Both activities go on forever and every where in life. Child, growing towards the maturity, taking the advantage of his experiences, does whatever proper responses, that is called learning. As Blair Jones and Simpson have said- ''any change of behavior which is a result of experience and which causes people to face later situation differently may be called learning.''

It is necessary to study the given definitions by the Psychologists to clear the meaning and nature of learning.

6.2 Definition of Learning

(1) According to Morgan and Gilliland—''Learning is the behavior of the organism as a result of experience which is retained for at least a certain period of time.''

(2) Gates and Others—''Learning is the modification of behavior through experience and training.''

(3) Woodbirth—"the process of acquiring new knowledge and new responses is the process of learning.''

(4) Skinner—"Learning is process of progressive behavior adaption.''

(5) Crown bank—"Learning is shown by a change in the behavior as a result of experience.''

(6) Crow & Crow—"Learning is the acquisition of habits, knowledge and attitudes.''

(7) Thorn dike—''Learning is selecting the appropriate responses and connecting it with the stimulus.''

(8) Kuppuswami—''Learning is a process by which an organism, as a result of its interaction in a situation, acquires a new mode of behavior, which tends to persist and affect the general behavior pattern of the organism, to some degree.''

(9) Parik—''Learning is the process of acquiring assimilating and internalizing cognitive, motor or behavior inputs for their effective and varied use when required and leading to enhanced capability of further self- mentioned learning.''

(10) Gaine—''Learning is a change in human disposition or capability which can be retained and which is not simply ascribed to the process of growth. The kinds of change called learning exhibits itself as a change in behavior and in the interference of learning is made by comparing what behavior was possible before the individual was placed in a learning situation.''

(11) Browne and Extend—''Learning is intimately related to the basis behavior characteristics of knowledge.''

Psychologists have given many definitions of learning to make clear the conception of learning. For example, some definitions have been presented above. In fact the collection of the above definitions have been done on the basis of this, which could make clear the opinion of learning from the multi angle point of view. In spite of being completely independent, the above definitions are complementary to each other. The following things of learning factor are explained with the combination of many definitions—

(1) There is change in the behavior by the process of learning as having been burnt in the fire, an infant does not go close to fire.

(2) Whatever changes happen in the behavior, keep on till sometime, as he does not forget it soon that there is a lot of pain, after having a burn from the fire.

(3) The change in the behavior is based on the earlier experiences, if a child has burn from fire, then he works in such a fashion while working with fire that he does not get a burn again.

(4) The change that happens in the behavior could be externally visible, invisible or partially visible.

(5) There are permanent changes in the behavior or doing work in the learning related way. The changes happening in the behavior in the form of doing work, cannot include those changes, which are originated from the main instincts, maturity, addiction, and tiredness.

(6) Learning is the refinement of behavior. Once the changes take place in the behavior, that changed behavior can be improved in a new situation.

(7) The learner obtains growth again and again in cognative, affective and conative fields by the learning, which helps him with the progressive change in his behavior.

6.3 Process of Learning

The process of learning has been cleared with the help of above definitions. The process of learning moves on throughout the life consciously or unconsciously. Developing by individual learning process. Its basis is maturity. Inspiration is necessary in the process of learning.

According to Guthrie—"Ability to learn is to respond differently to situation because of the past experiences to a situation."

According to the Peel—''Learning is a change, in a person which, happens according to the changes in his environment.'' Peel has explained the process of learning in brief—

(1) By learning, permanent and temporary, both types of changes come in a person.

(2) Learning is different from the easy, natural activities of person as blinking the eye and to draw the hand etc.

(3) Learning is possible by the social and biological adjustments or conscious purposes.

(4) Learning can originate both types of behaviors as social, unsocial in a person.

(5) Education can be faultless and faulty.

Psychologist Boaz has said—''Learning is the process which the individual acquires various habits, knowledge and attitudes that are necessary to meet he demand of life in general.''

According to Woodbirth—''Learning consists in doing something new provide the new activity is rein forced and reappears in latter activities.''

This definition is revealed by doing **Skinner's** experiment on the mice.

6.4 Features of Learning Process

In the definitions of learning, Psychologists have given a specific type of nature to the process of learning. If the specific process of learning is analyzed, the following characteristics of learning process are highlighted:

(1) Learning is universal—Learning is such a process, which happens in the living beings in all the times and all the places. Wherever there is a being, place and time, the process of learning will take place. Human being keeps on engaging in doing something every time.

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(2) Learning is change—The change that happens in the behavior of child is learning. Learning is that process, by which the change will appear in the child. By the learning, the sequence of changes and re-changes move on, by which child becomes the outcome of the changes.

(3) Learning is development—The development of child is possible by the process of learning. The contribution of learning in the whole development of child is so much important, that learning becomes the synonym of development. The Psychologists have considered that the personality of child is developed in form of progressive changes and refinement, which is possible by the process of learning. Learning is seen in the form of development.

(4) Learning is adjustment—Child establishes adjustment with the society and the environment by the learning process. The process of adjustment is so close to the process of learning that we understand adjustment as learning. In fact Human being has to adjust with the environment to survive. So he has to do the process of learning for his survival. Gates and others have accepted learning as an adjustment.

(5) Learning is Purposesive—It is necessary to have some purpose for learning. The goal of learning could be attained by purpose only. Purposiveness decides the aim of learning, and provides the direction to the responses.

(6) Learning is continuous—Learning is neither limited to any age, or any period. Rather, it continues throughout the life.

(7) Learning is creative—It is the tendency of human nature, to do some creative work. Thus, doing such work is learning, which he manifests in the form of thoughts and actions. Creativity encourages man, by initiative towards learning.

(8) Learning is response to total situation—A person establishes adjustment with different kinds of situations after examining them on the basis of completeness. He continues to learn to do the right responses for the adjustment to the situation. So learning is a delivery of right responses to total situation of a person.

(9) Learning is a relationship between stimuli and responses—To establish the right and desirable responses with any stimuli is learning. On the basis of this fact, Psychologists have delivered the word 'relational' in the study of learning.

Did u know? The process of learning goes on throughout the life.

(10) Learning is related with cognitive, affective and conative domains—whatever a man learns, its field is cognitive, affective and co-native. And learning is related with cognitive, affective and co-native fields, he collects knowledge, feelings and collects skill to do activities.

(11) Learning is Transferable—A person can use the same skills and solutions of the problem in the other similar problems, which he has learnt in any situation. Means, learning transfers. Thus, learning is transferable.

(12) Learning is a process—From the psychological point of view learning is a process, which moves on in a living environment. This process is seen, in the fulfillment of the need, under the condition of stimuli- responses, in obtaining the goal, in obtaining the success in the adjustment, and in the stabilization of behavior and practical change. It is cleared that there are four important parts in the process of learning. It can be understood by the following diagram:

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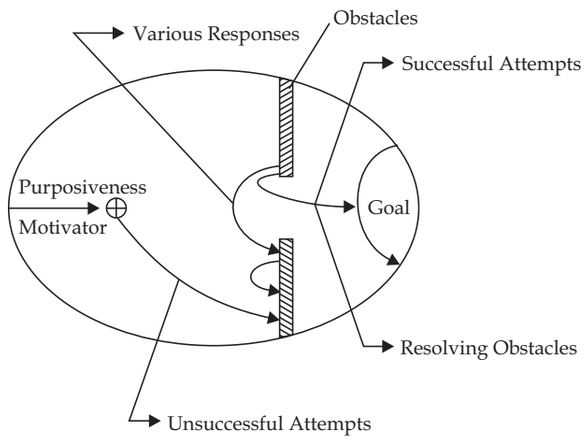
Fig. 6.1 The Depiction of Learning Process



It is evident from the above diagram, that, being motivated by a purpose, a person begins the process of learning. In case of not being purpose motivator the process of learning does not begin. In the process of learning, firstly a person does various efforts to get his goal. In which some efforts are success and some are failure. Failure efforts do not penetrate the obstacles in obtaining the goal. Successful efforts, piercing the obstacles, help in obtaining the goal. There are four phases of learning process—

(*i*) Need or Purpose—In the process of learning, first the need for purpose or motive originates. Need is that bodily power, which makes power active for its fulfillment.

(*ii*) Goal—Need is goal aspiring, which makes a person act till acquiring the goal. The process of learning is not effective in the absence of goal perception.

(*iii*) Adjustment—A person establishes adjustment with the situation to get the goal. He tries many times to pierce the obstacle. In which the efforts that help in getting the goal after piercing the obstacle, is called successful efforts and rest are failures.

(*iv*) Change—By the process of learning, change comes in the behavior of a person that differs from the former behavior or that was not present in the behavior of the person earlier. Being permanent, this change becomes a part of a person's acquired behavior. Though, it is possible to make change in this as well. This is called the process of reinforcement.

Self Assessment

Use the sign of right (✓) and wrong (×) in front of given statements:

1. The process of learning comes to an end after the infancy. ☐
2. Learning can be faulty or faultless. ☐
3. According to Crow & Crow—"Learning is the acquisition of habits, knowledge and qualities." ☐
4. Learning develops negativity in a person. ☐

Notes

Steps in the Process of Learning

After analyzing the process and the definition of learning, the steps of learning are found. Psychologist **Miller** and **Dollard** have expressed their opinion on these steps—

''In order to learn one must want some thing, notice some thing, do some thing and get some thing.''

Dashiell has explained the steps of learning process more clearly. In these steps (1)Motivation, (2) purpose, (3) complication, (4) various responses for getting purpose, (5) reinforcement (6) unification are important. In the process of learning, motivation is originated in a person to fulfill his need, which has its some purpose, being inspired with the purpose, he becomes active. Every action and behavior of a person has its own purpose means his action is purposeful. The third step in the process of learning is— To have obstacle in the process of learning. On finding the obstacles, he gives various responses or behaves differently in order to achieve his aim. Whatever kind of behavior he does to remove the obstacle by his skill that includes the process of learning. Among the various types of possible responses, the response that helps in the fulfillment of purpose is reinforced. And he repeats that successful process in the peculiar situation. Thus reinforcement is an important step in the process of learning. The description of this theory has been done further. After this, the earlier knowledge of new successful responses connects to many activities. Thus, when the new experiences connect to the earlier experiences, it becomes the part of his knowledge, it has been called by the psychologist 'pre-compliance', and the process of learning is accomplished by the above step.

Learning and Maturity—Maturity has great effect on the process of learning. Maturity means the physical development. Mental ability also develops along with the physical development. There are changes in the behavior of the human as a result of this development. The change in the behavior happens due to maturity and learning. The process of learning goes on throughout life. In this way the development of the human being takes place. Maturity is also a continuous process of development. Maturity means that children become capable to doing something at a certain age which they were not able to do earlier. Maturity and the process of learning are closely related. The physical instrument of learning like spinal chord and nerves help us in learning. As the body of the child grows towards maturity, he begins to use the powers within, and his behavior keeps on changing. For this change, physical, motor and mental maturity is needed. In relation to the learning and maturity, the opinion of **Boring**, **Longfield**, and **Weld**, "Maturity means that growth and development which is necessary before the learning of any special kind of behavior." So the physical and mental maturity is needed before learning. In this relation, **Psychologists Dennis**, **McGraw** and **Strayer** etc have concluded after experimenting on the twin sisters that maturity is needed for learning. In order to learn the skill which requires physical and mental maturity, forcing some one to learn it early is not beneficial or psychological. Mr. Dennis did an experiment on twin girls. One girl was trained to climb the staircase after five months whereas the other girl was not at all trained. After one year it was observed that both girls were equally capable of climbing the staircase. It is evident from this experiment that physical and mental maturity is necessary for the learning of any skill. The training given in the immaturity is useless. Hence it is harmful to force the child to learn maths, read and get knowledge of any subject. Learning under immaturity harms the child. It affects the physical health of the child as well. Hence it hinders his natural development. Hence it is necessary to focus on the level of maturity the process of learning.

Notes Physical and mental maturity is necessary for learning. The training under immaturity is proved fruitless. To train a child read and write in infancy is harmful.

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6.5 Types of Learning

It is not easy to describe the types of learning. Because it can be classified with various angles, hence keeping in mind the learning methods, principles, theories, ways of learning, subject matter it can be divided in the following way—

(1) Sensory Motor Learning—It includes the skill attainment knowledge. In this kind of learning various kinds of skills are attained. In includes various skills, like swimming, cycling, typing and painting etc. Learning of emotional activities comes under it. A child learns after following the daily activities, like he learns to talk by repeating and hearing meaningless words.

(2) Motor Learning—In the first stage of development children learn to control the movement of the parts of the body.

(3) Intellectual Learning—In includes the processes of obtaining knowledge which are following:

(a) Perceptual Learning—Under this, a child reacts or responds after hearing or listening the entire situation on mental level with the help of sensory organs.

(b) Conceptual Learning—In this kind of learning he has to take help of logic, imagination and rumination. On this subject, logic and imagination have been described in detail.

(c) Associative Learning—Conceptual learning becomes possible because of this kind of learning. This kinds of learning comes under memorizing. It has been described in the lesson dedicated to memory.

(d) Appreciational Learning—In this kinds of learning, children learn to explain emotionally, or describe something with beautification. With the help of these descriptions various types of learning, the purposes of learning becomes evident. These have been described in the book further.

(e) Programmed Learning—It has been described in a separate chapter.

Task In the current education systems, the childhood has been taken away from children. Please given your opinion on the age of the child for primary education and development of learning process.

If we examine the conditions of learning, then we find the following types of learning—

(1) Simple Learning—When a child learns something independently and simply by playing, it is called simple learning, like a child learns to keep away from the fire during his play. In the response to such simple process he learns easily, he does not have any organized response.

(2) Complex Learning—Complex learning includes complex and organized processes and the level of complexity also increases, as the child learns the music, it becomes necessary for him to understand various notes and sounds, and moving forward he has to learn the complex process of symphonies and melodies. In complex learning a child has to establish a balance in various skills and processes.

(3) Sudden Learning—Sudden learning happens un-precedented, like a child learns something new in a mutual discussion. In this child is conscious of learning, neither he tries to learning anything systematically. He just learns all of sudden.

(4) Purposeful Learning—Purposeful learning as a result of effort. A child has to make effort consciously and knowingly to learn something. A child decides the goal of learning and becomes active systematically. If a child wishes to learn mathematics, then he will go to person who can teach the principles of mathematics. It is also self practiced.

6.6 Summary

- Learning is a life long process. Man learns throughout his whole life. In education psychology, learning is the main subject.

Notes

- Learning is an extensive word. Learning depends on the inborn responses. Being inspired by the inborn instinct, a man does whatever activities there are, for the adjustment of his situation. According to the Psychologists- Learning is a mental process. A mental process is expressed by the behavior. A man is changed and refined on the basis of the experiences in his behavior.
- In order to explain the meaning of learning, psychologists have given many definitions for it. Like according to Crow and Crow, "Learning is acquisition of habits, knowledge and attitudes."
- Motivation is necessary in the process of learning. Learning can produce social and un-social responses in a man.
- Maturity has great effect on the process of learning. Maturity means the physical development. Mental ability also develops along with the physical development. There are changes in the behavior of the human as a result of this development. The change in the behavior happens due to maturity and learning. The process of learning goes on throughout life. In this way the development of the human being takes place. Maturity is also a continuous process of development.
- The physical instrument of learning like spinal chord and nerves help us in learning. As the body of the child grows towards maturity, he begins to use the powers within, and his behavior keeps on changing. For this change, physical, motor and mental maturity is needed.
- Learning under immaturity harms the child. It affects the physical health of the child as well. Hence it hinders his natural development. Hence it is necessary to focus on the level of maturity the process of learning. They both are dependent on each other.

6.7 Keywords

1. **Learning**—To learn or obtain knowledge
2. **Maturity**—Here maturity means the physical development

6.8 Review Questions

1. Please explain the nature and types of learning with the help of these definitions.
2. What do you understand by the nature of learning, kindly explain the characteristics of the process of learning.
3. Please explain the various types of learning.

Answers: Self Assessment

1. (×) 2. (✓) 3. (✓) 4. (×)

6.9 Further Readings

Books

1. Psychology—A study of Human Behavior—*Brij Kumar Mishra, PHI Learning, New Delhi*
2. Psychology—*Dr. Saryu Prasad, Agra Book Store, Agra*
3. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi*
4. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi*

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Unit-7: Motivation in Learning

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7.3 Development of Motivation

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Objectives

After the study of this unit, the student will be able to—

- Understand the nature of Motivation.
- Understand the origin and development of motivation.
- Know the causes of motivation.

Introduction

Man is an active creature by his nature. He is always engaged in some work, and continues to do some kind of behavior. He does not do any work or behavior without any purpose. And the purpose of his work is to make the fulfillment of some especial goal. For example a student studies with a great zeal and intensity while other is detached from the study. What is the cause of it? This type of question arises— Why do we take food? Why do we earn money? Why do we take education? It can be found in the answer of these questions that there are some motives for the action and behavior of any person, which motivates him, for doing action and behavior in different situations.

Krech and Krachfield has said clearly—The question of motivation is the question of why. In fact Needs, Driver, Incentive, Motive are the main sources of motivation. Hilguard has written—"the

need gives birth to driver, the driver is the condition of developed intensity, which progresses toward the action and starting behavior. Stimulus is some thing related to external environment, which satisfies the needs and in this way diminish the driver by action.'' The motivator can be understood in the same words of needs, desires, intensity, natural situation, decisive qualities, habits, interests, stable incentive. In short motivation is the creation of above four facts: need, driver, stimulus and complex organization.

7.1 Nature and Definitions of Motivation

The English word Motivation is originated from the Motum word of Latin language. According to the general and verbal meaning of motivation, move, motor and motion we can call any stimulus a motivation, which helps a person for reacting and behavior. This type of stimulus can be both internal and external. But from the scientific point of view, motivation is an internal power, which internally motivates a person for doing any action. This type of motivation can be called the driving power of physical instrument. The following definitions have been presented for explaining the psychological meaning of the word motivation:

(1) Wood worth—Achievement = Ability + Motivation. Means Achievement is obtained by ability + motivation. The ability of a person is developed by getting motivation. This type of ability is possible by the achievement of motivation.

(2) According to Lowell—"motivation may be defined more formally as a psychological or internal process, initiated by some need, which leads to an activity which will satisfy that need.''

(3) According to Good—"Motivation is the process of arousing sustaining and regulation activities.''

(4)According to Blare, Johns and Simpson—"Motivation is a process, in which a learner's internal energies or needs are directed towards various goals and objects in his environment.''

(5) According to P.T Young—"Motivation is the process of arousing action, sustaining the activities in the progress and regulating the pattern of activity."

After analyzing the above definitions, related to motivation the following things are clarified—

(1) Motivation is psychophysical or internal process or stage.

(2) Motivated process is originated due to any need.

(3) Motivated process leads towards the direction of doing any important activity.

(4) This process goes on till the attainment of any purpose.

In the psychological context, the meaning of motivation is by the internal stimulus, as a consequence of which we do any action and behavior. Psychologists have not concluded external stimulus under motivation. For example hunger is such an internal stimulus, according to which we can be inspired for having the food, so hunger can be called motivation. A person can be inspired for having the food after seeing the plate of food. Here the plate is an external stimulus, but eating process did not get inspired. A man will not take the food, until he gets internal motivation, so we can say internal stimulus, which motivates a man for doing any activity, is called motivation. Motivator is more important in the motivation. So it is essential to throw light on the meaning and definition of motivator.

Motivator- Meaning and Definition

The meaning of motivator—In the action and behavior of a human being, inborn, natural and acquired instincts are hidden. These instincts inspire for behavior, so psychologists have called it motive. So we can say that the motivation instinct lies in the root of human behavior, which inspire a man for doing some activities.

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The word motive should be understood by the definition given by the psychologists. Motivation is a mental set and motivator is a factor which motivates a man for doing some especial action. So we can say that motivation tells about the situation and motivators are due to its reason.

The definitions of motivator- For explaining the concept of motivator, the psychologists have given many definitions of motivator—

(1) Shaffer and others—"A motive may now be defined as a tendency to activity initiated by a drive and concluded by an adjustment.'' This definition is evident by an example- In the state of hunger there is a contraction in the layers of stomach, and a man feels intensity on his internal side. And getting ride of this confusing stage he searches for eating material. His searching goes on until after getting the food he quenches his hunger. In this example the state of hunger is motivation. And the cause of state of hunger is called hunger motive. From this point of view the function of motivator tendency are—

(1) Arousing the activity,

(2) And continue it,

(3) And continue to lead it towards the definite dimension until he gets the goal.

According to the above definition hunger drives and inspires for having the food. And hunger drive comes to an end after having the food. And there is difference between the motivator tendency and motivation of food. Motivator is an extended word under which need, motive, driver and incentive all come.

(2) Gates and others—"Motives take a variety of forms and are designated by many different terms, such needs, desires, tensions, sets determining tendencies, attitudes, interests, persisting stimuli and soon.''

(3) Wood worth—"A motive is a state or set of the individual which disposes him for certain behavior and seeking certain goals.''

(4) MacDougal—"Motives are conditions psysiological and psychological within the organism that dispose it to an act in certain ways.''

(5) Gilford—''A motive is any particular internal factor or condition that tends to initiate and to sustain activity.''

(6) J. Drever—Motive is an effective - conative factor which operates in determining the direction of an individual's behavior towards an end or goal, consciously apprehended or unconscious.''

(7) Thomson—Motive is an effective and conative factor which operates in determining the direction of an individual's behavior towards an end or goal, consciously apprehended or unconscious.''

The sides of Motivation

We can say on the basis of above definitions that the initiation of motivation is by some need and end after the attainment of any goal. Motivation is an extended word. There are the three sides of motivation, which are following—

(1) Need

(2) Drive

(3) Incentive

Task Write the sides of motivation with example.

(1) Need—There are some fundamental needs for sustaining the life of every creature, And it is necessary to fulfill them. As it is necessary to fulfill the needs of water, air, food, sleeping. If these physical needs are not met, tension and imbalance arouse in the body, as a consequence of which he becomes activated. For example being hungry, activeness is sustained in a man until he gets his food. After getting the food his need is completed. And his tension and his activeness come to an end. Giving the definition of need Boring and Langefield have said-"A need is tension within an organism which tends to organize the field or organism with respect to certain incentives of goals and incite activity directed toward their attainment."

Therefore, the psychologists have also said need, such as a condition, which is felt in the reduction and absence of any thing. Man is always active to complete this reduction. As for the fulfillment of consumption of eating material he tries to get the food, he searches for water for the fulfillment of water; here the reduction of water and eating material is the needs of water and food.

Notes The initiation of motivation is from some need. If bodily needs do not fulfill, there is tension or imbalance in the mind of man, and consequently he becomes active.

(2) Drive—The stage of tension that arises due to the needs of creature is called drive. Thus need is generated by the drive—As-thirst-drive, by the need of water and hunger-drive originated, by the need of food. The feeling of hunger and thirst is an internal stimulus. This generates tension in the man. A man does action for having food and quenching the thirst. Thus to inspire for doing action is the chief characteristics of drive. Psychologists have given the definitions of drive in this way—

Deshiyal—"Drive is original source of energy that activates the human organism."

Sheffar and others—"A drive is a strong, persistent, stimulus that demands an adjusting response."

(3) Incentive—Incentive is a thing of external environment, which satisfies the drives after fulfilling the need. For example—hunger is a drive, which is satisfied by the food. Therefore food is an incentive for 'hunger- drive'. According to Hillgard-"In general, an appropriate incentive is one that can reduce the intensity of a drive."

The internal stage of a man is indicated by the need and drive, while incentive is presented in the external environment. In the words of **Boring and Lang** field, "an incentive may be defined as an object, a situation or an activity which excites, maintains and directs behavior."

Relation among Need, Drive and Incentive

There is a close relationship in these parts of motivation. Hillgard has cleared the need drive incentive formula. How does this formula work, has been clarified very well after the understanding of the meaning of these thrice. Hillgard has written about the close relationship of these three. "Need gives rise to drive state which is a drive of heightened tension leading to activity and preparatory behavior and the incentive in the external environment that satisfies the need and thus reduce the drive through consummators activity."

7.2 Origin of Motivation

The development of man depends on the activity of maturation, exercise and learning. These elements are related to the origin of its motive. A man performs some action without any learning due to maturation. Thus the origins of some motives are natural. Other motives are originated as the consequences of experiences and efforts. These are learnt and acquired motivation. For example the feeling of hunger for

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an inborn infant is such a motive, which is natural and without learning. Hunger is an internal intensity. In fact this intensity generates due to the reduction, consequences motivation arises. Motivation arises due to internal reasons.'' The inspiration of an adult man in some parts is basically instinctive and in some parts it is learnt or acquired.

Did u know? The origin of motivation is for the fulfillment of the physical need. For example in the beginning there is a motive for the fulfillment of need of hunger and thirst. Then a man needs money for the getting the pleasure. And the desire of getting pleasure inspires him for collecting the money.

A man learns to behave according to the culture, rules and traditions of the society, in which environment he lives.

The relation of the origin of this type of motivation. (1) Maturation (2) Needs and internal intensity (3) and with environment.

7.3 Development of Motivation

Motives develops according to the development of needs, age and experiences. In the beginning this development is physiological, and soon it is psychological. A man has some natural needs at the time of birth. In the beginning due to the need of hunger, thirst and toilet he gets the motive of the cause of action and behavior. And he weeps and cries, and soon and later he learns to control over the environment with the growth of age. Consequently changes come in his behavior towards his inspiration. In the childhood due to the main instinct and emotions a child gets enjoy in playing and meeting with others. He gets the motive of doing especial kind of behavior for gaining this pleasure. In the same way in the adolescent according to the development of age and qualities, he gets the motivator power for the fulfillment of physical, mental and social needs and the development of motives go on in sequence.

7.4 Causes of Motivation

There are two causes of motivation—

(1) Natural cause

(2) Acquired cause

(1) Natural causes are following—

(a) The activities related to the surviving desire-as hunger and thirst etc.

(b) The sense of self defense.

(c) The feeling of getting comfort and pleasure.

(d) The sense of resolving problem.

(e) Love feeling (sexual).

(f) Emotion, main instincts and thought.

(g) Will power

(h) Unconscious mind.

(2) Acquired causes are following—

(a) Social ideal, situation, relation and environment.

(b) Habit, etiquettes and interest.

(c) Stable emotion, complex feeling.

(d) Cultural and social achievement as- thought, feeling, education.

Self Assessment

Choose the correct option:

1. "Motive is a process of initiating, sustaining and regulating any activity." Who has given this definition of motivation—

   (a) Woodworth (b) Lowell (c) Good

2. Motivation process is such a tendency, which is finished by—who has given this definition of motivation—

   (a) Gates and others (b) Shafer and others (c) Woodworth

3. "Motivation is an effective creative factor, whose functions is a work of making certain the condition of behavior and carrying towards the purpose or consciously or unconsciously determined goal.'' Who has given this definition of motivation—

   (a) Drever (b) Thomson (c) Gillford

The Function of Motive

According to the concept of Gates—There are the three types of motive on the basis of inspired behavior of man—

(1) To make behavior strong—motivation provides strength to a man for doing some work, which helps him in the generation of Activeness. For example hunger and thirst generates muscles and glands responses inside of a person. The execretion in muscles and glands provides such a physical strength to a person that he becomes active. Besides it motives provide personal stability for the longer behavior. Hebb has found out this conclusion with his studies that motivated behavior is skillful and appropriate. In the absence of appropriate behavior reduction comes in the strength of doing work.

(2) Selection of the behavior—Motives provide capability of doing selective behavior to a person. Motivated behavior moves in a proper way. A man selects that useful behavior among much possible behavior. This helps him in the attainment of goal and satisfies his needs. Motives prepare a person for reacting for peculiar stimulus. Motives tell how a man should behave in a different situation.

(3) Movement of the behavior—Motives does the work of moving the behavior. They move the behavior in this way that the direction of behavior is toward the satisfaction. Although, it is difficult to move the inspired behavior due to the proportion of aimed goal and the obstacle creativity of situation. But the swiftness of motives sustains the proportion of the behavior of man and provides guidance in the direction of getting success in the struggle of attainment of goal. In this condition there is the requirement of this things that the behavior of man is in the side of determining purpose and he will use his whole power for it.

7.5 Summary

- Man is an active creature by his nature. He is always engaged in some work, and continues to do some kind of behavior.
- There are some motives for the movement of action and behavior of any person, which motivates him, for doing action and behavior indifferent situations.
- We can call any stimulus, a motivation, which helps a person for reacting and behavior. Which internally motivates a person for doing any action.

Notes

- We can say that the motivation instinct lies in the root of human behavior, which inspired a man for doing some activities. It can thus be explained by example—In the stage of hunger there is a contraction in the layers of stomach, and a man feels intensity in his internal side. And getting ride of this confusing stage he searches for eating material. His searching goes on until after getting the food he quenches his hunger. In this example the stage of hunger is motivation. And the cause of stage of hunger is called hunger motive.
- The development of man depends on the activity of maturation, exercise and learning. These elements are related to the origin of its motive. A man performs some action without any learning due to maturation. Thus the origins of some motives are naturally. Other motives are originated as the consequences of experiences and efforts. These are learnt and acquired motivation. For example the feeling of hunger for an inborn infant is such a motive, which is natural and without learning. Hunger is an internal intensity. In fact this intensity generates due to the reduction, consequences motivation arises. Motivation arises due to internal reasons.''The inspiration of an adult man in some parts is basically instinctive and in some parts it is learnt or acquired.
- Motives develops according to the development of needs age and experiences. In the beginning this development is physiological, and soon it psychological.
- In the childhood due to the main instinct and emotions a child gets enjoy in playing and meeting with others. He gets the motive of doing especial kind of behavior for gaining this pleasure. In the same way, in the adolescense, according to the development of age and qualities, he gets the motivator power for the fulfillment of physical, mental and social needs and the development of motives go on in sequence.

7.6 Keywords

1. **Motives**—Purpose, Cause
2. **Stimulus**—To provoke, Awake.

7.7 Review Questions

1. What do you understand by motives?
2. Throw light on the sides of Motives.
3. Explain in detail the origin and development of motives.
4. What are the causes of motives? Explain the function of motives.

Answers: Self-Assessment

1. (c) 2. (b) 3. (a)

7.8 Further Readings

Books

1. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*
2. Psychology—*Dr. Saryu Prasad, Agra Book Store, Agra.*
3. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi.*
4. Psychology-the study of human behavior—*Brij Kumar Mishra, PHI Learning Pvt. Ltd., New Delhi.*

Notes

Unit-8: Transfer of Training or Learning

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Introduction

8.1 Meaning of Transfer of Learning

8.2 Theories of Transfer of Learning

8.3 Types of Transfer of Learning

8.4 Conditions of Transfer of Learning

8.5 Educational Importance of Transfer of Learning

8.6 Summary

8.7 Keywords

8.8 Review Questions

8.9 Further Readings

Objectives

After the study of this unit, the student will be able to—

- Understand the meaning and theory of transfer of learning.
- Know the types of transfer of learning.
- Understand the supporting conditions in the transfer of learning.
- Understand the importance of transfer of learning in education.

Introduction

It is the opinion of Educational Psychologist that the knowledge obtained by the study of any subject proves useful in other subjects and situations. Often it is seen that the learning of any one action and subject helps in the learning of other action and subject. Ancient Psychologists have given important place to some subjects in the education. It was their opinion that mind can be trained properly by these subjects. It is the statement of **Plato**—"If geometry is taught to a dull minded, necessarily he will get some intelligence. The person, who will read geometry, will be more intelligent to understand all the subjects than any other person." It is the opinion of Educationalist **Locke** that by the teaching of maths, a man is judicious and he can transfer this judgmental power in the learning

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of other subjects. In the current times, the changes are going on in this method of training the mind. From the educational point of view, for getting the success the use of any learnt subject can be done in other subject. In education from the syllabus creating point of view, transfer theory has an important place in learning. Here, learning transfer and training transfer, two words have been used. Learning transfer means to make a use of self acquired knowledge in other situation by student. Training word includes both learning and teaching, thus both the words are related to application. So here, for comfort, learning transfer word has been used. So it is necessary to pay attention on the meaning, theory, type and educational importance of learning.

Notes Philosopher Plato has said expressing his opinion related to learning that "if a dull minded was thought geometry he will get some talent. The person, who will read geometry, will be more intelligent to understand the entire subject than any other person."

8.1 Meaning of Transfer of Learning

In education, transfer of learning means 'To make use of learnt application and subject in other situations. In other words, Acquiring knowledge in other subjects and situations is affected by the acquired knowledge in one subject and situation, is called the transfer of learning. It is also called learning transition' and learning transfer. For example- the knowledge which is gained in learning maths helps in the learning of Physics, chemistry and statistics. This application is called the transfer of learning. In this way a child uses his general knowledge of maths in the buying of thing in the market. It is evident that there is transition of education in some form in related fields. The meaning of learning transfer is evident with the following definitions given by psychologists—

(1) Velon and Veanstein—"Transfer of learning means that performance on one task is by affected performance on another task".

(2) Crow & Crow—"The carry over of habits of thinking, feeling or working of knowledge, of skill, from one learning area to another is usually referred to as the transfer of training."

(3) Callesanik—"transfer is the application to carry over of knowledge, skill, habits, attitude or other responses from the situation in which they are initially acquired to some other situation.''

(4) Prof. Sorenson—"Transfer is discussed to carry over the knowledge, training and habit acquired in one situation to another situation."

(5) Pretorson—"Transfer is generalization for it is extension of idea to a new field.''

It is evident from the above definitions, that, to make use of earlier learnt, acquired knowledge, skill, habits or other responses in other situations, is called transfer.

8.2 Theories of Transfer of Learning

After understanding the theories of learning it is necessary to know, how does transfer happen? For this, it is necessary to study the different theories of transfer. These theories are following-

(1) Faculty theory of Mind and concept of Formal Discipline—This theory depends on the faculty psychology. According to it mind is made after mixing up many faculties, like- observation, memorization, imagination, discussion, and decision. This strength is different and free from one another. After training them and doing practice they can be made fast. And they can be used skillfully in any situation. For example if faculty is trained of memory, it is necessary to learn those words, which

are not useful for person at that time. Therefore it is the opinion of followers of this theory, that logical power can be trained by maths and then it helps in the learning of those subjects in which logical power is needed. According to this theory the selection of the learning subjects should be done in this way, by which, the mental faculties could be strengthened. Current psychology does not accept the division of mental faculties, so this theory cannot be accepted.

(2) Theory of Identical Elements—The founder of this theory Thorndike confirmed this, on the basis of his experiments, when there is similarity between the subjects and the contents of two experiences, there is more possibility of transfer. If there is similarity between both, the acquired knowledge of one subject proves fruitful in the study of other subject. As maths knowledge in Physics and in statistics, history's knowledge in political science, Psychology's knowledge in Educational Psychology, and the knowledge of philosophy helps us in the study of Educational- philosophy and we do not feel complication. The main reason of it, that, the identical parts and elements are found in these subjects. Sir Gates has given his statement in its confirmation- ''It is seen that there is a higher ratio of transfer in the identical elements.'' That's why during the time of selecting subjects students try to select the subjects, which have identical elements in some parts. As- Selecting political science with current history.

Did u know? As math's knowledge in Physics and statistics, history's knowledge in political, Psychology's knowledge in Educational Psychology, and the knowledge of philosophy helps us in the study of Education-philosophy.

(3) Theory of Generalization—The founder of this theory is Mr. Charles Jud. According to this theory when a person finds out a general theory with the support of his experience, study and knowledge, he can transfer it in other situations. Explaining this theory Mr. Jud has said, "according to this theory, development of individual skill, complete possession on individual facts, attainment of individual habits and instincts have less importance in other situations from the transfer point of view- Till then skillfulness, facts and habits are not orderly related those other situations , in which it could be used.

It is evident from the above statement that child should be given education not only for discipline in one situation but also should be trained for well conduct and behavior in different times or situations.

(4) Theory of 'G' and 'S' factor—The founder of this theory is Spearman. According to him a child needs a general and individual capability for the learning of each subject. General capability or intellect is used in every sphere of life. But individual intellect is used in the specific situation. General intellect helps a man in every situation, so general capability and element is transferred, not individual elements. History, Geography and Literature are related to general capability, but drawing, music etc are related to individual capability.

(5) Theory of Gestalt psychologists—Among the Gestalts Psychologists, mainly Kohler's name comes. Kohler forces on the using of insight after observing the entire situation. These psychologists give importance to insight in learning. The development of insight is learning, which is used in one situation. According to these psychologists- To carry over the performance of insight, used and developed from one situation to other is called transfer of learning. A man observes the similarity between first and last situations and transfers the insight gained from one to another situation. This transfer happens due to the observed similarity. This type of transfer is seen in the solution of a problem, in which a man uses the solution gained from one situation into another similar situation. So this transfer is purposeful and effortful and equal opportunity is needed for this. Kohler has confirmed this theory by doing many experiments on the chimpanzee. According to Bayles, it is necessary to have three things for transfer of learning. (1) Arrival of opportunity. (2) To observe the opportunity. (3) The instinct of taking advantage with the opportunity in a man.

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8.3 Types of Transfer of Learning

There are six types of transfer of learning—

(1) Positive Transfer—When the learning of one subject proves useful into other subject, it is called positive learning. We find in the positive transfer that, the affect of previous obtained knowledge, skill, instinct or other responses is seen in later obtained knowledge, skill, instinct or other responses. For example the man who has learnt typing on the English type writer, he learns easily typing on Hindi type writer. Means English typing proves useful for learning. The opinions of psychologists related to positive transfer are following.

(*i*) Morgan and King—"Positive transfer occurs when something previously learned benefits performance or learning in a new situation."

(*ii*) Sorenson—"A person learns through transfer to the extent that the abilities required in one situation help in another."

Positive Transfer is like a horizontal and vertical. Its description has been presented in no.3 and 4.

(2) Negative Transfer—When the learning of one subject and skill hinders in the learning of another subject and skillfulness or produce complication, which is called negative transfer, as it is difficult for a science side student to learn Arts side subjects. And other example as- the skill or knowledge of previous learnt English typing hinders in the learning of Hindi typing on Hindi type writer. This is negative transfer. In relation of negative transfer in which, we find after completing previous task in the completeness of later work, Psychologists have following opinions-

(*i*) Morgan and King—"Negative transfer occurs when something previously learnt hinders performance or learning in a new situation."

(*ii*) Boring and others—"when learning one task makes the learning of second task harder we speak of negative transfer."

Negative transfer is horizontal and vertical type as well. Its description has been presented in point no. 3 and 4. The nature of negative transfer is of two types—

(a) Retro-active Negative Transfer—When something previously learnt is affected or forgotten by the learning of new thing, it is called retro active negative transfer. For example it is difficult to remember previously learnt poem after learning the new poem.

(b) Pro-active Negative Transfer—When previous learnt thing affects or hinders the learning of the new thing, it is called proactive negative transfer. For example, the previously learnt poem hinders in the learning of second poem, or the lines of previous poem interfere in the memory.

(3) Horizontal Transfer—There are two types of horizontal transfers. When different types of talents and knowledge help in the learning of other talents and knowledge, it is called horizontal transfer. This transfer occurs between two subjects in a class. For example in the tenth class, a student's maths related learning helps in the study of Physics. We call this type of transfer positive horizontal transfer. On the contrary if the learning and talent of one subject hinders in the learning and talent of other subject, it will be called negative horizontal transfer. For example tenth class student obtains knowledge and talent in maths, but this obtained knowledge hinders in the learning of Hindi and English. This type of learning will be called negative horizontal transfer.

Did u know? When a student earns talent and knowledge in maths and this knowledge hinders in the learning of Hindi, then this types of learning transfer is called horizontal transfer.

(4) Vertical Transfer—There are two types of vertical transfers, negative and positive. When the talent and knowledge obtained in a situation proves helpful in the obtaining knowledge of related subjects

moving further, it will be called positive vertical transfer. For example, learnt maths in class eight proves helpful in the learning of maths in tenth class by a student. On the contrary, when obtained knowledge and talent related to one subject hinders in obtaining knowledge and talent related to that situation, this type of transfer is called negative vertical transfer, for example- the literature knowledge of class eight's student hinders in obtaining knowledge in next class, this type of learning will be called negative vertical transfer. Means the first step of learning hinders in the learning of second step.

Task Clear the difference between horizontal and vertical transfer.

(5) Lateral transfer—when the efficiency of one organ of body affects the other related talent of the same organ, then, this type of learning will be called lateral transfer. For example- the skill of Hindi writing by the right hand affects the skill of Sanskrit writing.

(6) Bi-lateral Transfer—When the acquired efficiency by one organ of the body affects the efficiency of another organ , then this type of transfer will be called Bi-lateral transfer. For example a man learns to write with right hand but according to the need he can also write with left hand, even while he has not practiced to write with left hand. We can see in this situation that the talent of right hand was transferred in left hand.

8.4 Conditions of Transfer of Learning

The following conditions prove helpful in the transfer of learning—

(1) Generalization—Much as a person is capable in finding the general theory or rule on the basis of his previous experiences, there is transfer of training.

(2) Understanding—Identical knowledge is acquired after the understanding of any thing very well. Consequently there is more transfer. So it is better to understand any subject well for the transfer of teaching.

(3) The degree of mastery on the subject–matter—More the skill is gained after the deep studying of any subject, more transfer of that subject into others subjects is possible.

(4) Deliberation—If a man after keeping his previous experiences tries to understand the new situation or subject by the effortful and proper education methods, there is the transfer of teaching.

(5) Attitude toward the material of transfer—A person's positive attitude towards the material of transfer proves helpful in the positive transfer.

(6) Method of Teaching—Above teaching methods provide help in the transfer of teaching.

8.5 Educational Importance of Transfer of Learning

For the education—It affects of the process of learning transfer in education. Following things should be paid attention to for the transfer of learning in education-

(1) Transfer and syllabus—The most important use of transfer is for the development of syllabus.

For the discipline in the children, the favorable syllabus should be prepared, means it includes such subjects which are useful and related to the problem of daily life. The nature of syllabus should be practical. It is the opinion of Thomson- "It is beneficial to have more subjects in the syllabus. The more subjects will be, more students will learn the abilities of surviving."

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(2) Transfer and Teaching method—A teacher should provide the education by the proper method for the positive transfer. They should be given education in such a way that he could make the use of acquired knowledge of one subject, in the learning of other subjects. Child should also be given necessary guidance for the transfer. Children should be told identical element related to subject for the transfer of one subject's knowledge in to other subject. For this it is necessary to pay attention to the rules of association. For the success of transfer, a teacher should try to make his subject more interesting.

(3) Generalization—A teacher should follow such an educational method during the time of teaching, following which the student could himself find out the general theory related to subject. Student should be provided opportunity and should not be interfered in that. After developing the characteristics of generalization, child uses it soon in the new situation. It is the statement of Handrix related to it "The child who has the knowledge that after multiplying six by eight makes forty eight, he can soon tell that 8 chairs in 6 rows are 48." So whatever a teacher teaches should be taught on the basis of generalization. There is more possibility of transfer with it.

Self Assessment

Fill in the blanks:

1. Plato has said, "if a dull minded should be ..... taught, he will get some growth."
2. Lock's opinion that man is judicious with the teaching of ..... .
3. The knowledge of history provides helps in the learning of ..... .
4. Psychologists in learning of transfer have given importance to Kohler's ..... theory.

It is evident from the above details, that, in the process of learning, transfer has an important place. A teacher should learn some more other things on top of the above things-

(1) A teacher should explain the subject clearly.

(2) According to the mental condition end personality differences in the children , the teacher should chose the subjects and educational methods, and favorable situations should be provided for the transfer.

(3) During the time of teaching, a teacher should follow the co-relation theory. He should teach new knowledge after connecting with the previous knowledge. He should tell about the similarity of the same factors coming in the teaching of the new subject and the factors of the other subjects during the time of teaching. This method transfers the teaching.

(4) For the success of transfer, Rumination power should be developed and the interest toward the study should be awakened. A child should always be provided the inspiration of getting knowledge.

(5) Education should always encourage children for the fact that, whatever knowledge has given him, they use it in the common life. After using the required knowledge in the different fields of life, the capability of gaining success in all the sphere of life is developed. In this way they are able to adjust themselves with the situations of the future life.

8.6 Summary

- It is the opinion of Educational Psychologist that the knowledge obtained by the study of any subject proves useful in other subjects and situations. Often it is seen that the learning of any one skill and subject helps in the learning of other skill and subject.
- It is the statement of Plato—" if geometry is taught to a dull minded, necessarily he will get some intelligence. The person who will read geometry, will be more intelligent to understand all the subjects than any other person"

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- Learning transfer means to make use of self acquired knowledge in other situation by a student.
- Some important theories of learning are – the theory of mental power and the opinion of formal discipline, the theory of similar elements, the theory of generalization, the theory of general and individual parts, the theory of gestalt psychology.
- None of these theories can be given importance. It will be proper to see these theories in coordination point of view.
- There are six important types of learning- positive, negative, negative transfer, horizontal transfer, vertical transfer, lateral transfer, Bi-lateral transfer.
- In the process of learning, transfer has an important place. A teacher should learn some other following things except the above things.
- For the discipline of the children, favorable syllabus should be prepared, means it includes such subjects which are useful and related to the problem of daily life.
- They should be given education in such a way that they could make the use of acquired knowledge of one subject, in the learning of other subjects. Child should also be given necessary guidance for the transfer.
- During the time of teaching a teacher should follow such teaching method, by which student could discover the general theory related to own subject.

8.7 Keywords

1. **Transfer**—to carry over.
2. **Learning Infection**—knowledge obtained from one subject affect the learning of other subject.

8.8 Review Questions

1. What do you understand by transfer of learning?
2. Throw light on the theories of transfer of learning.
3. Explain in detail the types of transfer of learning.
4. Describe the importance of transfer of learning in education.

Answers: Self-Assessment

1. Geometry 2. Maths 3. Political 4. Insight

8.9 Further Readings

Books

1. Psychology—*Dr. Saryu Prasad, Agra Book Store, Agra.*
2. Psychology—*The study of human behavior- Brij Kumar Mishra*
3. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi.*
4. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*

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Unit-9: Nature of Education Theory

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Objectives

After the study of this unit, student will be able to—

- Know, what is teaching?
- Understand the factors of influencing learning.
- Understand the importance of learning for a teacher.

Inroduction

Teaching is an important part of learning process. A person is capable and successful in acquiring new knowledge by it. The direction of educational process is possible by human behavior and its emotions. In order to make education process effective, teaching has been considered the central object in the field of teaching. In the field of Psychology, the process of learning is not only considered as a proper Psychology but also the different parts of it as-teacher, student, syllabus, and the process of learning has been given an important place. It has been proved now that learning should be given important. It is necessary to understand the meaning of teaching, before pondering over the nature and theory of teaching.

9.1 What is Teaching?

Most of the people have an illusion about teaching. They consider that the meaning of teaching is to mug up or fill up a mind with knowledge, but in fact, it is wrong. Teaching is a phenomenon. The following definitions can be seen to clear the meaning of teaching:

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Dr. Mathur—In the present times the word teaching does not mean that child's filled with useless and impractical things. Now teaching means that the child should be provided with such opportunities, by which child could get the ability to solve his problems according to his conditions and nature. He could plan himself, collect the material, and well organize it and get the result, which he could take in use again.

Thomas E. Clayton—''Teaching is a skill, that is used for the increment of the knowledge and to lit up the interest and aptitude in the students. That is a transmission between two or more people, in which a person involved with another in learning. This is a practice done in the school, in which a person, who is already educated, teaches children.''

B.F Skinner—''Teaching is the arrangement of contingencies under which students learn. They learn without teaching their natural environment, but teachers arrange special contingencies which expedites learning, hastening the appearance of behavior, which would otherwise be acquired slowly or making sure the appearance of behavior which might otherwise occur.''

Clarke—''Teaching activities are performed to produce change in student's behavior.''

B. O. Smith—''Teaching is a system of actions intended to produce learning.''

Gates—''Learning is the modification of the behavior through experience and training.''

Burton—''Teaching is the stimulation, guidance, direction and encouragement of learning.''

The following factors come after the study of above definitions—

1. Teaching explains a general opinion.
2. It is a social process.
3. It depends upon the human nature.
4. It is an objective and descriptive process.
5. This is formal and informal.
6. There are three sides of it – Student, teacher and syllabus.
7. It has its own method, and it is directed by many methods and processes.
8. Direction and guidance both are included in it.

Characteristics of Teaching

There are the following characteristics of good teaching—

1. It is suggestive.
2. It is stimulating.
3. It is well arranged and well planned.
4. It is based on the progress.
5. It is full of sympathy.
6. It is based on corporation.
7. It is child centered and psychological.
8. It originates self confidence in the child.
9. It is resolving and full of remedy.
10. It is given to the child keeping in mind his earlier knowledge.

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9.2 Factors of Influencing Learning

After studying the process of learning, it is also necessary to study the influencing factors of learning in the education, because man's nature is changeable, and its study is complicated. And personality differences are found in the learning.

Psychologists have studied such factors on the basis of their experiments, which generally affect the learning of all persons. There can be a progress in the process of learning, after getting proper knowledge of factors influencing learning. In these factors, inspiration, interest, meditation, intellect, health, the nature of subject and the different methods of learning are important. These factors can be studied in the both aspects as helpful and as an obstacle in the process of learning. Opposition of any factor is an obstacle in the process of learning. But it proves helpful to be appropriate and adapting to them. Describing the factors and conditions of learning, it is the statement of Psychologist Simpson- "Along with the other conditions of learning, some conditions are following- Proper health, good habits of living, being free of the physical faults, good habits of study, emotional balance, mental ability, act related maturity, desirable attitude and interest, better social adaptation, freedom from tradition and superstition."

On the basis of above opinions, the factors of influencing learning can be divided into four parts:

(A) Physical factors, (B) Psychological factors, (C) Environmental factors, (D) Other factors.

(A) Physical Factors

(1) Sense organs—Physical factors are very important in influencing the process of learning. First Physical factors, which are included in the process of learning, are sense organs. The five types of sense organs are watching, hearing, taste, smell and touch. Representation is the basis of our whole knowledge.

Did u know? If we have any crippled sense organ, it is difficult to get knowledge related to this organ. For example a child, who is blind, cannot learn any thing easily. Thus in case of being handicap in other sense organs, it is obstacle in the process of learning.

(2) Physical and mental health—It is necessary to be physically and mentally healthy for learning. The children, who are physically and mentally fit, take interest in learning and soon learn. Unhealthy children do not take interest in learning and tire soon, consequently they learn subject less and lately. Because of tiredness there is trouble in the learning. Tiresome person can not do the work properly in spite of having interest and inspiration. So it is necessary to pay attention on the physical and mental health.

(3) Maturity—Learning is closely related to maturity. As soon as child grows, his physical and mental abilities also develop along. Thus, physical and mental maturity affects the process of learning. From this point of view, mature child does not face any difficulty in the learning, his energy and time do not go waste.

Task Learning is closely related to maturity. Explain with the example.

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(B) Psychological Factors

(1) Inspiration and Learning—Inspiration has an important place in the process of learning. In the process of learning the place, importance and the utility of inspiration has been described in a separate chapter. It is necessary to have a motivator in the learning. Motivator is an internal power, which forces a person for action. The work, which is done by internal inspiration, more zeal and creativity is seen in them. A teacher should have good understanding about the needs, interests and motivations of children. Need, motive and incentive are related to inspiration. If a teacher does not understand these factors, he can not get success in the process of inspiration. In order to get incentive, child is especially encouraged for learning. Need gives him inspiration for learning. Psychologists have proved this by doing experiments on the animals and men related to inspiration. Along with the inspiration of learning, encouragement also gets along. Then they learn quickly and easily. In the education of a child, he can be inspired by the appreciation, encouragement and prize. In the same way, by the proper punishment and criticism he does not repeat the bad conduct and behavior. In the education, reward and punishment, both one by one, help in the learning of good behavior and giving up bad behavior.

(2) Interest and Aptitude—Learning is depended on the nature of a person. If a child takes interest in any subject then he feels easiness and joy in the learning. The first responsibility of a teacher is to develop an interest and aptitude in a child. When a child gets an opportunity due to his interest and aptitude, he exposes his whole personality, and learns that skillfully. It is necessary to make the arrangement of giving education by examining the interest and aptitude of the child in the schools, so that they could adjust themselves successfully in various situations.

(3) Will to Learn—The will of the person has an important place in the learning. If a person has a will of learning, then he does learning in against conditions. The person who has not any desire of learning, he cannot be taught under any conditions. As a Psychologist has said, '' A horse can be taken to the pond, but you cannot compel him to drink against his desire.'' So it is a duty of a teacher after developing interest and aptitude in the children, to make their will power strong.

(4) Intellect—Intellect and capability of learning are closely related. The distribution of intellect among the children is not equal. So the different children have different kind of capability of learning. Learning mostly depends upon the intellectual ability of learner. An intelligent child learns every subject quickly, while a dull child takes time in understanding and learning. Opinion, Imagination, rumination and decision power are related to intellect.

(C) Environmental Factors

Environment—The progress of learning mostly depends on the congenial environment. The act of learning cannot be completed easily in the adverse situation. The psychological atmosphere of class affects the process of learning. **Montessori** has said, it is very necessary for a teacher to originate the psychological moment for the process of learning. The place of study should be full of fresh air and light, which makes mind and body healthy. Learning places, whether it may be school or home, should be peaceful. Attention can be gathered, only in the lonely and peaceful atmosphere. Intensive stimulus should be used in the class to attract the attention towards the subject, as helpful material and proper example etc. The atmosphere of the class should be easy, interesting and full of curiosity. Thus in the proper environment there is progress in the learning.

Self Assessment

Choose the correct alternative—

1. "The process, done for changing the behavior of student is learning.'' Who has given this definition in relation of education—

   (a) Clanton (b) Skinner (c) Clark

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2. A horse should be taken to the pond, but he should not be forced to drink water against his desire. For which factor, this example is presented—

   (a) Intellect (b) Desire (c) Environment

3. Who has given the following definition- ''Education is inspiration, direction, and encouragement for learning'' —

   (a) Smith (b) Burton (c) Simpson

4. Whose statement is this-"It is necessary for a teacher to originate a psychological moment for the process of learning" —

   (a) Kindergarten (b) Gates (c) Montessori

(D) Other Factors

(1) Nature of subject matter—The learning of any subject depends upon the nature of subject matter. For example, in the textbook the lesson of interesting story is learnt easily and with interest than that of complicated and criticizing essay. In this relation teacher' method of'simple to difficult of complex' theory proves useful, Means while teaching easy things, to grow towards difficulty.

(2) The Methods of Learning—In Learning progress especially depends on the methods of learning. The description of these methods has been done place to place. The methods of learning according to the child will be so interesting and appropriate, as much the learning will be easy. From this point of view, in the beginning classes, 'playing method' and 'Learning by doing' or 'action method' is used. In the higher studies 'Community related explanation' and other methods are used.

(3) Practice—In learning, an important factor that helps in bringing progress, is practice. Practice affects learning very much. It has been said in the 'Rules of Practice'.

(4) Teacher and the learning Process—A teacher has in important place in the process of learning. In the dual process of learning, the conduct, thought, behavior, personality, knowledge and learning method of teacher has a direct effect on the student and the process of learning. **Montessori, Frowail and other Psychologists** have called teacher as the path guide, gardener and artist. A teacher can make the process of learning easy and fast for the students on the basis of his talent and various materials.

The learning place should be always clean, airy and full of light. Mind concentrates in the peaceful atmosphere, which is most appropriative from learning point of view.

Notes The learning place should be always clean, airy and full of light. Mind concentrates in the peaceful atmosphere, which is most appropriative from learning point of view.

(5) Knowledge of result—If learner keeps on getting the knowledge of his progress while learning then he gets the encouragement and inspiration for further learning. If he gets failure and mistakes, it is essential to have a knowledge of this, learner gets the inspiration of attempting and improving again and again. So a teacher should to give him knowledge of his progress, success and result.

Besides the above important factors the following factors can be looked into from the **additional educational learning** point of view, on the basis of special division-

(1) Factors belonging to the Learner—As a family is the first school of a child, but when a child enters in the school with the formalities, many curiosities originate in his mind, which he wants to calm and he has to adjust with the new environment. In such conditions, the process of learning is affected by many factors, as the child (who is the basis of learning process) desires of learning, the level of ambition,

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educational background, health, maturity, inspiration, the interest of learner, learning time, the period of learning, intellect and the learning processes etc. Being affected by these important factors he can go forward on the path of success learning anything easily.

(2) Factors belonging to the teacher—There are many factors belonging to the teacher influencing the learning. For example, subject knowledge of the teacher, psychological knowledge, methods of learning, the knowledge of personality differences, proper behavior, child centered education, time table, extra-curricular activities and discipline etc. these are the factors, which help teacher in teaching. In the absence of any one of these factors, learning can not be completed.

(3) Factors belonging to the subject matter—Some factors for influencing the learning that belong to subject matter are following, as the nature of subject matter, figure, language, method, series, example presentation, seeing hearing material, the complete purpose of interesting subject matter, difficult levels of different subject and its structure. The process of Learning is very much affected by these factors. If few things is kept in mind in developing these factors, learning will be stable.

(4) Factors related to management to learning—there are many factors influencing the learning and are related to management to learning. In order to maintain this system many methods shall be deployed, like part vs. whole method, sub-subject vs. focused learning, collected vs. distributed, organized vs. contextual method, and active vs. inactive method.

(5) Environmental factors—Many factors of environment affect learning, As-heredity, knowledge of social heredity, the effect of environment, social and cultural environment, informal reason of education, development of personality, familiar and psychological environment, physical environment of class and all situations.

(6) Group characteristics, internal process—Man is a social an, animal, the absence of it his existence is not considered. He develops much connectivity to the group and community, and the rules of that group, customs, limitations, and traditions affect him. It is necessary for a teacher to have knowledge of group psychology to make the process of learning more effective.

9.3 Importance of Learning for Teachers

The proper knowledge of the above material related to learning is very important to complete the teaching successfully. A teacher can make teaching effective by using them. The importance of learning for a teacher can be expressed in the following way—

(1) A teacher can use the knowledge of the principles of learning to bring desirable changes in the behavior of child.

(2) A teacher requires the knowledge of the methods of teaching, method of learning and the alternative of learning skill to express skill in the teaching.

(3)After choosing the rules and learning methods, a teacher can use them for the progress of each child according to the personality differences.

(4) A teacher can understand the importance of motivation in the learning with learning knowledge, and can inspire the child for the learning by the proper motivation.

(5) Education related knowledge informs the teacher with easily accessible and obstructive factor, so that, teacher can use the effective factors paying attention to the obstructive factors.

(6) With the help of learning knowledge, a teacher can make learning easy and interesting by using the theory of evaluation and condition of learning.

(7) Obtaining the knowledge of learning, a teacher can make valuable contribution and utilize the educational condition, and according to the needs, he can try an expedition in improving the condition of class.

(8) A teacher can evaluate the significance of his teaching in context of changes happening in the student, or can decide the validity and invalidity of the learning methods on the basis of evaluation outcome of students.

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9.4 Summary

- The direction of educational process is possible by human behavior and its emotions. In order to make education process effective, teaching has been considered the central object in the field of teaching.
- Teaching is a phenomenon. The following definitions can be seen to make clear the meaning of teaching:

  Dr. Mathur—In the present times the word teaching does not mean that child's filled with useless and impractical things. Now teaching means that the child should be provided with such opportunities, by which child could get the ability to solve his problems according to his conditions and nature. He could plan himself, collect the material, and well organize it and get the result, which he could take in use again.
- Psychologists have studied such factors on the basis of their experiments, which generally affect the learning of all people. There can be progress in the process of learning, after getting proper knowledge of factors influencing learning. In these factors inspiration, interest, meditation, intellect, health, the nature of subject and the different methods of learning are important.
- The proper knowledge of the above material related to learning is very important to complete the teaching successfully. A teacher can make teaching effective by using them.
- A teacher can evaluate the significance of his teaching than in context of changes happening in the student, or can decide the validity and invalidity of the learning methods on the basis of evaluation outcome of students.

9.5 Keywords

1. **Inspiration**—Feeling and thoughts arising in the mind.
2. **Sense organ**—organ giving the information of subjects.

9.6 Review Questions

1. What do you understand by teaching? Write the characteristics of good teaching.
2. Describe the factors influencing the learning process.
3. How is 'inspiration' and 'interest' helpful in the process of learning?
4. Explain the importance of learning for a teacher.

Answers: Self-Assessment

1. (c)	2. (b)	3. (b)	4. (c)

9.7 Further Readings

Books

1. Educational psychology—*S.H.Sinha and Rachna Sharma, Atlantic publication, New delhi.*
2. The information and importance of education in the children—*Seema Chopra, Hindi book center, New Delhi.*
3. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi.*
4. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*

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Unit-10: Theories of Learning: Thorndike's Theory of Learning and its Educational Implications

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Objectives

Introduction

10.1 Theories of Learning

10.2 Thorndike's Stimulus- Response Bond Theory

10.3 Summary

10.4 Keywords

10.5 Review Questions

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Objectives

After the study of this unit, student will be able to—

- Understand the theory of learning.
- Understand the Thorndike's stimulus-response bond theory.

Introduction

The theory of learning is the explanation of the concept of learning by any psychologist and psychological community. Under this, the extensive solution of problems related to learning has been presented. There is no need of uniformity in the learning theories. There can be different approaches in the different theories of learning. Hilgard has described more than ten theories of learning in his book 'Theories of learning'. It is difficult to decide, which theory is right or which is wrong. The statement of Frandsen, related to it, is admirable—''Theory is neither right, nor wrong. They are only more or less useful for special tasks.''

The explanatory statements, that are presented in order to explain any concept on the basis of the conclusions of perceptible uses, can be named as Theory. The conditions under which learning takes place, scientists and psychologists, after observing, analyzing, and synthesizing it scientifically, have presented their collective thoughts concluding the result of their experiments, these could be called the concepts of learning. In the words of Prof. Chauhan- ''Theories of learning attempt to explain the mechanism of behavior involved in learning process.''

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Notes The statement of Frandsen related to it, is admirable-Theory is neither right, nor wrong. They are only more or less useful for special tasks.

10.1 Theories of Learning

Different psychologists have presented different theories of learning. Some theories have similar thoughts, while others have different thoughts. On the basis of similarity and differences, the classification of the learning theory can be done. In the books of Educational psychology, the classification of learning theories has been presented on the basis of their variations. Hence it is clear that the psychologists have different opinion in relation to the classification of theories of learning. With a point of view to make the study easy and limited, the classification of learning theories has been presented in the following way—

(A) Contiguity Theory—Under it the following theories are mainly included—

(1) Pavlov's Conditioned Reflex Theory

(2) Watson's Theory of Learning

(3) Guthrie's Contiguous Conditioning Theory

(B) Theories of Reinforcement—Under it, the learning theories of following group are mainly included—

(1) Hull's theory and Theories of hull's Traditions

(2) Instrumental Reinforcement Theory

Under it, the following theories are included—

(*i*) Thorndike's S-R Bond Theory

(*ii*) Woodworth's S-O-R Theory

(*iii*) Skinner's Operant Conditioning Theory

(C) Cognative Theory—Under it, the important theory of following group is included—

(1) Sign Learning Theories—Mainly Tolmen's Sign Learning Theory is in it.

(2) Gestalt Learning Theories—Under it mainly Kohler's Insight Theory and Koffka Trace Theory are included.

(3) Dynamic Theories—Under it Levin's Field theory and Psycho- analytical theory of Learning are included.

(4) Bandura's Modelling Theory

(5) Piget's Development of Learning Theory—Except the above learning theories, the description of many theories are found in the books of psychology. But here, it is not appropriate to give them place. Keeping in mind the purpose and limitations of books and not describing all the theories of learning, only the important learning theories have been described that are following—

Important Theories of Learning

(1) Thorndike's Stimulus- Response Bond Theory

(2) Pavlov's Conditioned Reflex Theory

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(3) Skinner's Operant Conditioning Theory

(4) Kohler's Insight Theory

10.2 Thorndike's Stimulus- Response Bond Theory

Edward L. Thorndike, in his book 'Animal Intelligence', in 1898, delivered famous connectionism. The meaning of connectionism in learning psychology is to make connection between stimulus and response. In the connectionism, connection is established between stimulus and response. So it is known by the name of stimulus response theory. In this theory along with the inborn factors of a man, there is a connection between the internal and external stimulus response. In the learning psychology 'Stimulus-Response theory' is an extensive theory whose researchers, **Thorndike, Woodbirth, Pavlov, Waltson, Guthri, Tollman or Hull** are important. According to these psychologists, there is a stimulus behind each activity, which affects a man. And he does responses according to that. Thus, stimulus is related with response. The organizer of this opinion Thorndike has forced to establish connection between stimulus and response for the learning. On account of insisting this bond, Thorndike's learning theory is called 'stimulus- Response bond theory'. Thorndike's Learning Theory comes under it. And it is a part of 'Associate Theory'. According to Thorndike, a bond is established between two or more experiences. There is a stimulus for the processing of some action, which causes response. Stimulus affects a man, according to that he responds. Thus, a peculiar stimulus is connected to response; means there is a bond between stimulus and response. **Wren** has defined this theory in the following way—

''Connectionism is the doctrine that all mental process consist of the functioning of the native and acquired connection between situation and responses.''

Thorndike's theory is basis of three factors—

(1) Stimulus or S factor, which includes in the situation of environment.

(2) Response or R Factor which exposes the activity of behavior.

(3) Stimulus, Response and Bond factor, which establish connection between stimulus and response. Or it binds stimulus with response and the development of bond between stimulus and response is the important thing of the theory of Thorndike.

According to the **Thorndike**—''Learning, in the nervous system, is a matter of reinforcement and making connection between stimulus and response.''

According to Thorndike connection is established between stimulus and response. Symbolically it is expressed by S→R. Thorndike has presented the rules of learning on the basis of S→R bonds. In his book 'Educational Psychology' he has written widely about this theory in the educational field.

Did u know? In America, Thorndike's theory got fame for 50 years, and many psychologists got the basic points for developing the learning theories.

Thorndike did many experiments on hens, cats, monkeys, fish, dogs, and men for the establishment of his theory. Experiments done on the cats are the most important. Thorndike has delivered the 'Trial and Error theory' as the types of basic learning, on the basis of the experiments done on the cats. Thorndike has forced on connecting and bonding of proper response with the stimulus in the explanation of learning process by the trial and error. So Thorndike's theory is better known by the name of 'Trial and Error' theory, because bond is established between stimulus and response by the trial and response, so originally Thorndike learning theory is known by the Stimulus Response Bond Theory.

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The chief characteristics of Stimulus-Response Bond Theory

(1) Bonding between stimulus and response is learning.

(2) The process of bond between stimulus and response is happened by trial and error. Learner tries and mistakes many times for learning the right process, but in many trials depriving mistakes and doing errorless trial he learns the right process.

(3) By trial and response learner becomes expert in doing definite response for definite stimulus. For this he selects right response among other possible responses, so Thorndike's this theory is also called '**The Theory of Selecting and Connectionism**'. According to **Thorndike—**

''Learning is the consequence of selecting the right responses and connecting them with stimulus.''

(4) This process of learning is mechanistic, because the selection of right responses is possible after removing the mistakes.

(5) There is response according to stimulus, and according to that human behavior is decided. Thus this theory says that only stimulus decides and controls the behavior, and along with a peculiar stimulus is needed for a peculiar response.

(6) Thorndike's theory has given a scientific base to the learning process in the field of education psychology.

(7) This theory is a form of associate theory.

Limitations of Stimulus-Response Bond Theory

In spite of having many qualities, stimulus response bond theory has many limitations, which can be described in the following way-

(1) Stimulus and response have not been explained properly in this theory.

(2) Mr. Miller has said ironically that it will not be wrong to call this theory, hyphen theory, because as the connection between stimulus and response have been expounded in it, but stimulus and response have not been.

(3) The structure of personality has not been specially described in it; this is the reason why the followers of this theory have considered psychoanalysis theory useful in their opinions and researches.

(4) All the psychologists have called this theory atomic and fragment.

(5) In this theory, useless efforts are forced to learn any activities.

(6) Criticizing the effect and result of the rule, the Practitioner have said that the process of learning has been incompletely explained in it.

(7) According to the followers of Gastalt, the connection happens itself between experiences and we find it in entirety, so there is no need for any kind of connection.

After throwing light on the qualities and limitations of **Thorndike's** theory, it will be appropriate to throw light on the important experiments done by him, learning method by trial and error and the rules of learning for expounding Thorndike's learning related explanation.

The Representative Experiment

Thorndike did experiments on many animals as- dogs, cats, monkeys and hens, for explaining learning related theory. But in his book 'Animals Intelligence' descriptive experiment done on the cat and its inspection is very important. Considering it as a representative experiment its description is following—

Thorndike's scientific use was done by keeping a cat in a case, which has been called a puzzle box. This was an easy experiment. The cage was prepared in such way that the door was opened by

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pulling a string or pressing a switch. A fish was kept outside of the cage. A hungry cat was kept inside the cage. Seeing the fish and finding it she did such attempts many times, so that she could come out and eat it. In its attempt of coming outside, cat did many acts as- jumping, moving claws, wandering here and there and to pounce. In this jumping suddenly the claw of the cat was put on the string and the door was opened. Coming out, cat got success in eating the fish. Thorndike imprisoned the cat again, cat retried coming outside for eating the fish, but this time doing a less leaping and jumping in comparison of earlier, she got success in drawing the string and coming out. Thorndike saw in such types of experiments in further series the useless trials of cat became less, and she got success in coming out and eating the fish in a few minutes. The errors were less. Once it was seen, that, as soon as the cat was kept in the cage, without doing any mistakes, pulling the string the cat came outside of the case and ate the fish. With the observations of this experiment, Thorndike concluded that by developing direct connection with the right response towards the stimulus, cat learnt coming out.

According to Thorndike, it was necessary to have two things for learning the method of coming out by cat (*i*) it being hungry of cat- It was necessary that cat would be motivated for learning so that she could do attempt (*ii*) To have a fish-so that she could take its food. Thorndike delivered his rule on the basis of this experiment, which explains the development in the learning of both animal and man, in stimulus response bond structure.

Thorndike's Laws of Learning—Different psychologists have discovered the laws of learning, after experimenting on the animals by laboratory method. But Thorndike has got the credit of making series of laws of learning. Thorndike's laws of learning are basis on the stimulus- response bond theory or connectionism. According to this law when there is a stimulus in front of a man, he is motivated for doing a peculiar type of response. In it, a special stimulus is connected to a special response. Process of learning includes in this response. According to Thorndike, learning establishes connection between stimulus and response. Brain does the work of establishing connection. It is necessary to have a relation between body and mind in the process of learning. He studied the bond of stimulus and response and created the primarily and secondary laws of learning—

(A) Primary Laws of Learning—

(1) Law of Readiness

(2) Law of exercise

(3) Law of Effect

(B) Secondary Laws of Learning—

(1) Law of Multiple Responses

(2) Law of Mental set or Attitude

(3) Law of Prepatency of Elements

(4) Law of Response by Analogy

(5) Law of Associative Shifting

(A) Primary Laws of Learning—

Thorndike has said the following three laws of learning—

(1) Law of readiness—This law means that when learner is ready for learning, he can learn, otherwise he can't. He gets ready for learning. In order to give education to a child firstly a teacher should develop such conditions which originate interest and curiosity in a child and he will be prepared for learning. For this, a teacher can motivate a child for learning by many methods. Skillful teacher, asking questions related to lesson or earlier knowledge can originate interest in a child for the lesson by the new methods of learning. Teacher often says to the student to come after reading the lesson. Thus he gets mentally

prepared for learning many things. And his preparations for learning help him in concentrating. Thus, child learns things easily, and gets satisfaction in learning.

(2) Law of Exercise—Law of exercise says that under a situation, in order to determine a right response, that response should be repeated again and again. Which learning process we repeat many times, we learn it easily. Learning can be made easy by exercise. According to Dr. J. N. Sinha- "keeping other conditions contant, whenever a changeable relation is exercised between a situation and a response, it becomes strong. This is called the law of exercise."

There are the two aspects of law of exercise—

(*i*) Law of Use

(*ii*) Law of disuse

(*i*) Law of Use—Whichever work is exercised again and again, is learnt easily. As a poem is repeated again and again to remember it. In the same way for learning riding bicycle, a child has to try many times, he falls and get wounded, but at last he learns riding bicycle. Painting, typing, learning music, playing any game etc can be learnt by using and exercise.

(*ii*) Law of disuse—This law is quite opposite to the law of use. If learnt work is not practiced or used, a man forgets it. For example—A man can not play or sing after leaving the practice of singing and playing. A player cannot play properly, when he comes in the play ground after a long time. Thus, the same thing can be said in the learning process, as- Success can be obtained in maths after doing daily practice. In brief, it can be said whichever work is not done or repeated for a long time, it is not remembered. It is called the law of disuse. So a teacher should give continue exercise to the student in the different subjects, otherwise taught knowledge, in the absence of exercise, or due to disuse, they will not remember it.

Task Write a commentary on the experiment related to Thorndike's learning theory.

(3) Law of Effect—This law is also called the law of satisfaction or dissatisfaction. If after doing some work we get satisfaction, we want to do that work again and again. The law of reward and punishment in the education indicates this side, if after doing any work child gets reward he wants to do it again and again, and by doing any work if he gets punishment, he does not want to do that work, so he does not learn it. This law, in the education can be used psychologically. It is the duty of a teacher that he should develop such situation for the learning of a child so that he could get success, and feel satisfaction and pleasure. For whichever work does a child get appreciated, he learns that work soon. All the laws of learning are depend and internally related to each other.

Self Assessment

Choose the right alternative:

1. Thorndike has used symbol for the establishment of connection between stimulus and response in his theory, the symbols are—

   (a) (T→R) (b) (S→R) (c) (R→S)

2. Thorndike's theory is depended on—

   (a) Change (b) nature (c) connectionism

3. The author of Animal Intelligence-

   (a) Kohlar (b) Skinner (c) Thorndike

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4. Thorndike did important experiment for his theory on—

(a) on cats (b) on rats (c) on hens

(B) Secondary Laws of Learning

Except above three important laws of learning, Thorndike has presented five secondary laws of learning, which are following—

(1) Law of Multiple Responses—According to Thorndike, when some stimulus provokes any creature he does many responses to get satisfaction, and there are multi responses before right response, out of which many responses are useless. But if responses are not multiple, learner could not learn right response. On the basis of this law of learning, a learner should be provided an opportunity by the improvement in his mistakes in place of an obstacle in the way of learning resulting in search of methods and different solution of learning, or he should be provided directions in taking decision towards any definite and effective solution, so that he could do less useless effort.

(2) Law of Mental set or Attitude—Mental condition and attitude affect much in the learning. Favorable attitude comes. If a learner has lack of expected attitude and mental conditions toward the learning process, then he can't do learning. However much effective teaching will be. According to Thorndike, how will a man react towards any stimulus is depended on his pre experiences, his thought, culture etc before his adjustment with the society. Often social tendency become more effective on reacting. So it is necessary to develop the curiosity and desirable condition of a child for the learning. So, according to this rule, it is necessary that a child should be prepared mentally before learning process.

(3) Law of Prepotency of Elements—This law is also called the law of selective response. It means that learner does not responds towards all the factors in troublesome condition, but he has a potential in responding towards some selected factors. Towards whichever condition, learner has potential in responding, is called the elements of prepotency, which already exists in the learner. On the basis of these elements of prepotency, response happens. To recognize these elements in learning condition depends on the intellect of a learner. By the potency of recognizing these elements, it is possible to make learning analytical and conscious.

(4) Law of Response by Analogy—Law of response by analogy mean responses done on the basis of similarity or analogy of two situations. In it, the use of previous knowledge and earlier experience is done in the new learning condition. Here the theory of transference does work. When some knowledge or experience is assumed properly, or it is assimilated, then it can be easily transferred in any other learning conditions. So it is also called the law of assimilation. There is a process of connecting knowledge and experience. A child should understand that whatever is being explained to him is a string of knowledge, to be obtained by him in the future. And he will feel as he knows very much related to new knowledge. On the basis of this, after establishing relation between earlier knowledge and new knowledge, learner makes given knowledge his permanent part.

(5) Law of Associative Shifting—Thorndike's associative shifting law means that the place of response of learner goes on change; it shifts in the form of formal and later conditions, which have relation? During the time of providing new knowledge to learner, if the same conditions are originated which were presented in the time of giving earlier knowledge, then learner will do the same response. To establish this kind of associative affinity between earlier and new knowledge, is called associative shifting. So as far as it can be, associative conditions should be developed before learning, so that learner could shift the place of knowledge.

The criticism of Thorndike's Law of Learning—Psychologists have criticized the law delivered by Thorndike—

(A) According to Avyviwadion, "the summary of learning is included in discovery." So a child should be inspired for learning and self realizing on the basis of creative activities. It can not be depended on the law of effect only. They have said criticizing the law of effect that every learner does not need reward or effect or the fruits of result. Fruit comes after some time, and the process of

learning is accomplished before. But it is necessary to say here, that inspiration has got an important place in learning by this law.

(B) Thus all types of learning cannot be depended on the law of exercise only. This law insists on to mug up. In the process of learning learner's interest, care and tendency also have important place. Often we learn many things only by an experience or one direction and there is no need of exercise.

(C) In the learning law of Thorndike, only useless efforts are focused to learn any process.

(D) It can be said that learner cannot progress properly by only depending on the law of exercise, law of effect, rather except these three laws, learner learns on the basis of newness, clarity and association.

(E) Other secondary law related to learning is based on the thought association, which is related to memory psychology. The extensive study of thinking association has been presented in the chapter 'memory or forgetting'.

In spite of having above criticism, the primarily and secondary law of Thorndike has an important place in the education. These laws provide an important contribution in the education of children. The connectivity of the above laws is highlighted in the learning method by 'trial and error' delivered by Thorndike.

Notes The summary of learning includes in discovery. So child should be inspired for self realization and learning on the basis of creative activities.

Learning by Trial and Error—Firstly Thorndike presented learning method by trial and error, after doing many experiment on the animals. Thorndike's classical experiment, which he did after keeping a cat in the puzzle box, on the basis of it the learning method of trial and error, can be explained. The same experiments have been described in the earlier pages. According to Thorndike when a problem originates in front of a man, he does different types of responses in order to solve the problem. These responses are erroneous in the beginning, but after doing many responses he gets success in his response. In learning the meaning of trial and error is in the learning time in the beginning success does not come, there is some errors in it, but when it is repeated many times, after each trial errors are less, as soon as trial is done, the numbers of error is less. And at last such time comes that a man gets success in attempting his work properly. Woodworth has said the following steps of learning method by trial and error in his book 'Psychology'.

(a) Readiness to reach some goal.

(b) The path of reaching to the goal is not seen clearly.

(c) To examine the situations and finding the possible way and use them.

(d) At last obtain the proper way.

The situations of learning by trial and error—the following situations are originated in the process of learning by trial and error—

(1) It is necessary to have drive in the learner. Drive inspires for the learning, and makes it active. Hunger is a drive. In the experiment of Thorndike, we saw that it was there which inspired cat for the learning (learning to open the door of the case).

(2) When obstacle comes in the satisfaction of drive, man makes efforts. After doing trial and error, at last he learns.

(3) There are random activities by the learner for the satisfaction of his drive, because learner does not have the knowledge of right response, like the unnecessary jumping of cat.

(4) All of Sudden he gets success after doing right activities by random activities fortunately.

According to Thorndike, following practical conditions are found in the learning, by trial and error:

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(1) Goal—It is necessary to have a goal for the learning. After getting the knowledge of goal, readiness will be seen in the learning process.

(2) To be mentally fine—A mentally recovered person tries to solve the problem, and looking for the possible way for the solution of the problem. If some obstacle comes in the way, he tries other ways.

(3) Obstacle in obtaining the goal—In case of originating obstacles, problem originates, and a man tries to solve the problem.

(4) Trial—A man tries after finding obstacles, and upon failure he tries another method until he finally succeeds.

(5) Sudden success—After doing many trials fortunately he gets success in the process.

(6) Stabilization of correct Process—When suddenly there is information of correct process, after doing many efforts, that correct process is chosen for obtaining the goal and the correct process is stabilized after repeating it again and again.

(7) The selection of correct process—It is the stage of learning. Effort is successful after selecting the correct process, and there is not mistake.

Educational Utility of Trial and Error learning method— The important utility of trial and error learning method is following—

(1) This method is like an improvement method. By this method child takes the benefit of the experience obtained by his earlier errors.

(2) After doing continuous effort, the characteristics of patience and hardwork develop in the children.

(3) In this method a child repeats the activities which he likes, these activities as a stimuli inspire him in the process of learning. He learns by the selecting successful process, so some psychologists have said this method 'Learning by selection of the successful variation.

(4) This method is depended on the practice. So learnt work gets permanent. So a teacher should encourage the student, if student gets failure in any activity. This method is very useful for serious subjects, as- math, science, grammar etc. The solution of the problems of math, the opportunity of doing by the trial and error should be provided. A child is more benefited by this method. The success after doing many trials is permanent.

(5) A child knows the goal but not get the idea of obtaining the goal, by this method, and then he does efforts himself, which develop in him the characteristics of self confidence and self dependence. These characteristics help him in developing the capability of finding the solutions of the problems and situations coming in the future, whose goals will be known to him but not the way of obtaining them.

(6) This method is not useful for the younger children.

(7) This method is specially not useful for the dull minded children.

It is clear after widely observing the Thorndike's learning related opinions that his theory, experiment, method and law have an important place in the field of psychology which can be used successfully in the educational learning process.

10.3 Summary

- Under some important theory of learning, the theory of Pavlov, Thorndike, Kohlar and Skinner are popular.
- The clarification of the opinion of learning by any psychologist or psychological community is learning. Under it, the extended solution of learning problems has been presented. There is no need of similarity in learning related theories.

Notes

- Different psychologists have presented different theories of learning. Some theories are same, while others are different. On the basis of affinity and differences, the theories of learning can be divided.

10.4 Keywords

1. **Drive**—to inspire
2. **Association**—Company, togetherhood

10.5 Review Questions

1. Throw light on 'Thorndike's stimulus—response bond theory'.
2. Explain the primarily and secondary laws of learning describing by Thorndike.

Answers: Self-Assessment

1. (c) 2. (b) 3. (c) 4. (b)

10.6 Further Readings

Books

1. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*
2. Educational psychology—*S.H. Sinha and Rachna Sharma, Atlantic publication, New Delhi.*
3. The Information and Importance of Education in the Children—*Seema Chopra, Hindi book center, New Delhi.*
4. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi.*

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Unit-11: Pavlov's Conditioned Theory and its Educational Implications

CONTENTS

Objectives

Introduction

11.1 Pavlov's Conditioned Reflex Theory

11.2 Utility and Importance of Conditioned Reflex Theory in Education

11.3 Summary

11.4 Keywords

11.5 Review Questions

11.6 Further Readings

Objectives

After the study of this unit, student will be able to—

- Understand learning related Pavlov's conditioned reflex theory.
- Understand the educational importance of conditioned reflex theory.

Introduction

I. P. Pavlov delivered the conditioned reflex theory (1849–1936). He was the native of Russia and a famous scientist. He was provided Nobel Prize in 1904 for doing the work on the digestion process. In fact he was studying the role of the flow of saliva in the digestion of dogs, at that time, he noticed that there is growth in the flow of saliva of dog, when the food comes and the sound of the feet of someone taking food is heard. After observing this incident, he delivered learning related theory. Thus he became a psychologist in the age of fifty. He published two books, Conditioned Reflex and Lectures on Conditioned Reflex. This theory is known by the name of Connected Reflex, Connected Variation, and Conditioned Response. But on the basis of the experiment, done by Pavlov on the dog, this theory has been given the name of 'Classical Conditioned Theory'. On the basis of nature of this theory it has also been given the name of 'Response Bond Theory'. Here the main aim is, to deliver the opinion of Pavlov's experimenting on the dog and its conclusion applied on the human behavior in the field of learning. So firstly it is necessary to understand the classical Pavlov's classical experiment.

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11.1 Pavlov's Conditioned Reflex Theory

Pavlov's Classical Experiment—Pavlov did his experiment on a dog in a laboratory. He added a tube in the grand salivation after doing surgery which fell in a utensil, which can be helped in the observation of salivation. During this experiment, food was given to a dog on a certain time everyday. Seeing the food the salivation of dog began to excrete. The presentation of food was a natural stimulus and the process of salivation by this stimulation was a natural response. Pavlov rang the bell in the second time, which was unnatural stimulus, and the alertness of dog and twisting the ears with this stimulation was an unnatural response. After this Pavlov rang the bell along with the presenting the food, means natural or unnatural stimulus presented together, as a response the dog salivated. This was the only response of both stimuli. This process was repeated in the laboratory many times, by which food and bell means, natural or unnatural stimulus connected reflexes were conditioned. Now in the third round Pavlov only rang the bell, means only unnatural stimulus, but did not present food even then dog salivated. Here it is an important thing that food as a stimulus substituted bell as a stimulus. This is the learning of substitution. Which Pavlov named conditioned reflex. Now a days psychologists named the Pavlov conditioned Reflex Theory Classical theory.

The above description of Pavlov can be defined in the following column—

Column No. 1 – The Main Elements of Classical Conditioned Theory
Situation before the conditioning Natural Stimulus–Food ..... Natural Response–The Process of the Salivation Unnatural Stimulus–Bell ..... Unnatural Response–Twisting the Ears
Situation in the middle of the conditioning Natural Stimulus–Food or Unnatural Stimulus–Bell ..... Natural Response–The Process of the Salivation (The condition was repeated many times)
The Situation after the Conditioning Unnatural Stimulus–Bell ..... Natural Response–The Excretion of Saliva

(In this condition, the excretion of saliva took place even after omission of natural stimulus, i.e. food)

Pavlov did all his experiments in the sound-proof room under controlled conditions. Pavlov's conditioned Reflex Theory depends on the mechanical process. It is clear from Pavlov above used table, that Classical conditioning may be defined as "A process in which an unnatural stimulus by pairing with a natural stimulus, acquires all the characteristics of natural stimulus."

We can see in the experiment of Pavlov, that, in the starting there was no excretion of saliva and the sound of echoing bell and there was salivation process on presenting food. And after that bell sounded along with the food, in the response there was excretion of saliva, and this process was evaluated. This experiment was repeated many times and it can be seen that the salivation process begins to grow due to presenting food along with the sounding bell and then the salivation process begin to grow with the response of sounding bell. A response condition is conditioned by reinforcement. Here Salivation process can be called Psychic Secretion before giving the food. That is basis of classical conditioning. Pavlov has divided the Reflex in the two parts, Psychological and Physics reflexes. Physics reflexes process is the outcome of any special experience. That is often called conditioning and conditioned Reflex Action. When any condition is connected to any response, without any familiar relationship, is called Reinforcement. Thus relationship is a common process, in which there is a mechanical substitution of one stimulus along with another. Although, it can not be changed in the Reflex action, yet it can be connected. In the other words, besides main stimulus it can be brought into light with the help of other stimulus, like connecting the excretion of saliva with the food bell.

Notes

Therefore Pavlov has also called the food a conditioned stimulus. The bell sound presents two things. In the beginning of the teaching it was conditioning stimulus because it was used in the conditioning of salivation process. When it was conditioned, it was called conditioned stimulus, because now it had an affect which was not present in it, means awakening the response of salivation process. After conditioning it was called conditioned response, because it was now connected towards the bell sound. The conditioned stimulus(food) and conditioning stimulus(bell) were mixed together and this process of connecting them is called bonding.

Pavlov has commonly called such stimulus and responses natural process. In the response of saliva excretion after seeing the food, the food will be called a natural stimulus and the excretion of saliva will be called natural response. Some times, some other unnatural stimulus is presented at the time of responding of natural stimulus, as a person with the food. According to this theory when any other unnatural stimulus present many times along with the natural stimulus, a man does natural response towards that other unnatural stimulus (a man with the food). This type of connection is called Higher Order conditioning.

Did u know? In the response of saliva excretion after seeing the food, the food is a natural stimulus and saliva excretion is a natural response.

Higher Order Conditioning—Pavlov found on extending his experiment that other unnatural stimulus also does the work of reinforcement after presenting it along with the unnatural stimulus. Awakening natural response with the unnatural stimulus is higher natural response. Pavlov presented unnatural stimulus as the rays of light when the dog started salivating process on hearing the bell in this experiment. It was done many times, after some times it was noticed that dog salivated to see the rays of light (other unnatural stimulus). In this experiment the process of salivating to see the rays of light is higher order conditioning, because in the beginning, other unnatural (the rays of light) stimulus was not presented along with the reinforced or natural stimulus.

Besides higher order conditioning, Pavlov and his followers did many experiments on the dog, and presented many important opinion on the basis of those conclusions, which extended to the conditioning learning theory. These opinions are following-

Temporal Relationship between Conditioned Stimulus and Conditioning Stimulus—It has been found in the experiments done on the dogs, that the connection between C S and UCS is established when there is a definite close timed relationship between them. In the experiment of Pavlov, conditioned learning was seen with the closeness of five seconds between CS and UCS. There are three situations of time closeness—

(A) Simultaneous Conditioning—When conditioned stimulus and unconditioned stimulus were presented all together. As—

C.S. ..... Food .....

U.C.S. ..... Bell .....

(B) Delayed Conditioning—When conditioned stimulus was presented after the presentation of unconditioned stimulus, As-

C.S. ..... Food .....

U.C.S. ..... Bell .....

It was found in the experiments that delayed conditioned process is most affective, because soon connection is established between both stimuli in this closeness of timing.

Notes

(C) Trace Conditioning—When unconditioned stimulus was presented after a long time from delayed conditioning and conditioned stimulus, as-

C.S. ..... Food .....

C.N. ..... Bell .....

If there is a great time interval between both stimuli in this condition, conditioning becomes impossible.

(D) Backward Conditioning—Backward conditioning is that condition when unconditioned stimulus is present before the conditioned stimulus, as—

C.S. ..... Food .....

U.C.S. ..... Bell .....

Conditioning does not happen in this condition.

Extinction—Pavlov stopped the presentation of conditioned and unconditioned stimuli on the basis of time closeness in his further experiments, means only the bell was rung but food was not presented consequently, dog stopped the salivation process on sound of the bell. This was called extinction. It was found after evaluating each effort of dog in the salivation process on the sound of bell that the quantity of salivation was continuously less. Hence extinction finishes the conditioning process. And it makes a weak the association of the sound of the bell and salivation as conditioning reinforces that association.

Spontaneous Recovery—It is seen in the observation of extinction related experiments that conditioning never finishes completely; rather the capability to counter is developed in the conditioning process. According to **Morgan** and **King**—''Extinction is a process of learning to inhibit the response acquired in conditioning.''

If the same conditioned and conditioning stimuli are presented many times, soon on the basis of time closeness, conditioning is established after establishing the relationship between both stimuli as disappearing or forgetting something, the process of remembering it after it happens again. For example when food and bell are not presented altogether, it is seen the salivation of dog is stopped on the sound of bell. This process is extinction. But after presenting the food and bell sound in the time closeness again, the dog starts the salivation upon hearing the sound of the bell- This is Spontaneous Recovery.

Inhibition—Inhibition is that process in the function of establishing conditioning, in which any other stimulus originates inhibition in the response. It can be caused by two reasons—(a) Internal Reason—in which any internal inhibition element does work, and (b) External Reason—in which any external inhibition element of environment does work.

Generalization—Generalization is that process in which stimulus related to conditioning response seems same. For example, if a dog has learnt salivation on the bell sound, he salivates on the sound of metronome, because both have the same sound.

Reinforcement—The difference between conditioning process and extinction process is only presenting the conditioning stimulus (food). It is clear from these differences that association is going on reinforced or weak. It is necessary to have reinforcement for making conditioning response. A famous theory of learning was developed with the experiment of Pavlov's theory. Psychologist **Skinner** and **Hall** have forced this side of learning, so their theory was called reinforcement.

Learning by Conditioned Reflex—Learning by conditioned reflex can be understood by the classical experiments of Pavlov, which has been already described in the last chapters. This is the beginning and appropriate example of learning by conditioned reflex, which should be presented for the better understanding of the students.

*CS = Conditioning, UCS = Unconditioning, S = Stimulus

Notes

Self Assessment

Choose the correct alternative:

1. Who is the founder of 'Conditioned Reflex Theory' —
   (a) Thorndike (b) Kohlar (c) Pavlov
2. The Nobel Prize winner in 1904 for doing especial works on the 'Diagnosis Process' was—
   (a) Kohlar (b) Pavlov (c) Skinner
3. The creation of Pavlov related to learning is—
   (a) Animal Intelligence (b) Conditioned Reflexes (c) Dynamic Theories

G.S. Anderson has described the learning by conditioned reflex in this way- "In conditioned Reflex Responses, according to a special stimulus whose response generally happens, is selected that this stimulus response is a different kind of learning according to the main tendency of creature. After this, a new stimulus is given with the main stimulus, and then, it is seen that this new stimulus does the same response which the main stimulus used to do. Thus, new stimulus conditions itself with the conditioned response in the learning by conditioned reflex responses."

Thus people learn by the conditioned reflex process. This connectionism is the main reason for the different habits like-fear, hatred, love, in children. For example- Child's fear from the darkness is not natural, but it happens when he is connected with the unnatural stimulus. Practically a Psychologist **Watson** did an experiment on the child, who had not fear from the animals and pleased much playing with the rabbits. One day when he was playing with the rabbit, a fearful sound was sounded. Child was frightened with it. This sound was repeated many times when he played with the rabbits. After some time he began to frighten even seeing the rabbit, when sound was not present at all.

Evaluation of the Conditioned Reflex Theory—Conditioned response method is depended on the above theory of learning, which is not beyond of criticism, some psychologists do not consider it today in this way. The following opinions are presented in this connection-

(1) It is easy to learn only animal by connectionism. A man learns less through this process along with the age growth. It does not play any important role in learning difficult subjects.

(2) Connectionism or conditioning is only possible in special situations. These situations are unnatural, while learning is possible in natural conditions.

(3) There is no stability in learning in this method.

(4) This method forced very much for practice and a different type of greed. The process of learning becomes mechanical after presenting unnatural stimulus many times, which does not have any newness.

It is clear now that this method or theory does not explain learning properly, but according to some psychologists this method is very important in the education and an important method in the learning.

Task Explain the learning process by conditioned reflex theory.

11.2 Utility and Importance of Conditioned Reflex Theory in Education

Conditioned Reflex Action, famous by the name of Connected Reflex, Conditioned Reflex, Connected Response and Connectionism action delivered by Pavlov, is very important and useful in the learning theory and method education, because the beginning of man's learning is possible by the expecting

responses. In the educational way, the utility and the importance of conditioned reflex theory can be highlighted in the following way-

(1) More advantage can be taken in the education of the child by the connectionism process. In the childhood many actions are related to the peculiar things and continue to adolescence. For example if a child is uninterested, hates, fears any peculiar thing and person, in the stage of adolescent his behavior is same towards the same things. Connectionism should be used carefully for the learning of good habits for the children.

(2) This method helps in removing bad habits and in changing the conduct and behavior.

(3) With the help of this method fear related mental diseases can be cured.

(4) For the establishment of discipline, the theory of reward and punishment is also depended on it.

(5) This method helps children in the social awareness and adjustment with the environment.

(6) The scholars of society and uncommon psychology have explained many subjects on the basis of this theory. This theory can be helped in the explanation of uncommon human behavior. The opinion of Crow and Crow is, "This method is useful for the education of those subjects, in which rumination is not needed, as-writing, alphabet series."

(7) It is the natural method of learning. Child always gets the opportunity of learning by this method.

(8) The seeing, hearing material, which is used in the learning, is depended on this theory.

(9) The learning process happening in the home and school can be explained easily with the help of this method.

(10) This method should be used properly for the conditioning work of children. This method is very useful in the learning process.

Notes Throwing light on the importance of this method **Skinner** said—"Connecting easy process is a fundamental theory, on which learning depends."

(11) The opinion of **Pro. Anderson** is—''The best contribution of conditioned response theory is, we get such an imaginary scientific basis material in it, by which we can developed a theory of learning."

11.3 Summary

- On the basis of the experiment done by Pavlov on the dog, this theory has been given the name of '**Classical Conditioned Theory**'. On the basis of nature of this theory it has been given the name of 'Response Bond Theory'. Here the main thing is to deliver the opinion of Pavlov's experiments on the dog and applying its conclusion on the human behavior in the field of learning.
- **Edward L. Thorndike** delivered famous connectionism in 1898 in his book 'Animal Intelligence'. In the field of learning psychology, connectionism means to create connection between stimulus and response. In the connectionism relationship is established between stimulus and response. So it is known by the name of stimulus response theory.

11.4 Keywords

1. **Reflex**—Come back, Return
2. **Extinction**—Spoil, Separate, Hide, Rob

Notes

11.5 Review Questions

1. Throw light on the conditioned reflex theory of Pavlov.
2. Explain the importance and utility of conditioned reflex theory in the education.

Answers: Self-Assessment

1. (c) 2. (b) 3. (c) 4. (b)

11.6 Further Readings

Books

1. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi.*
2. Educational Psychology—*S.H. Sinha and Rachna Sharma, Atlantic publication, New Delhi*
3. The Information and Importance of Education in the Children—*Seema Chopra, Hindi book center, New Delhi.*
4. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*

Notes

Unit-12: Skinner's Operant Conditioning Theory

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Objectives

After the study of this unit, students will be able to—

- Understand the learning related Operant Conditioning Theory.
- Understand the educational importance of Operant Conditioning Theory.

Introduction

For the clarification of any conception, the explanatory statement that which is based on the conclusion of the perceptible uses, can be called a theory. After studying the conditions taking place in learning, the psychologists, on the basis of observation, analysis and synthesis, by the scientific method and by the experiments, have presented a collected opinion, which are the theories of learning. Here Skinner's Operant Conditioning Theory has been described in detail.

12.1 Skinner's Operant Conditioning Theory

'Operant Conditioning Theory' is a method of learning, which was developed by an American scientist **B.F. Skinner**. His learning related opinions began to spread almost in 1932 century. His two books 'The Behavior of Organism' and 'Beyond Freedom and Dignity' are famous. Skinner's

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name is mainly known in the list of behavioral scholars. Skinner has described the two types of behaviors, as—

Types of Behavior

Respondent Behavior | Operant Behavior

(1) Respondent Behavior—This type of behavior lives under control of stimulus. For example, the excreting of saliva after taking food in the mouth is respondent behavior. Other examples of respondent behavior can be given by the experiment of Pavlov in addition of this example, as- to close the eyes after throwing the light, to move away the hand after piercing the pin and to draw away the hand after touching the hot thing.

(2) Operant Behavior—This kind of behavior is somewhat different from the above behavior. This behavior is not under the direct control of stimulus. It is embed in the self desire of learner. Operant behavior does not happen until a man is willingly ready for doing this type of behavior. For example in the experiment of Skinner, the behavior of rat is operant. In the same way after ringing the bell, opening the door or not depends upon the desire of a man. On ringing the bell, opening the door related behavior is operant behavior. In the experiment of Skinner, for getting the reward, rat operates the lever. Therefore this type of learning is called Instrumental Conditioning.

He considered learning as the changing process happening in the behavior like other behavioralists. He accepted conditioning as the reason of learning, but his conditioning process is quite different. In fact before delivering his learning theory, he did historical survey of already-done learning related studies and analyzed the creativity of concept and reflex. According to him, the fundamental basis of human behavior is observed in the correlation of stimulus response relationship. In the explanation of human behavior, former psychologists delivered the concept of reinforcement, which Skinner developed through schedules of Reinforcement further. He has imagined a such version of society in his ideal novel 'Walden Two' in which human behavior can be determined and controlled in a well organized way by awarding prize.

According to Skinner we should see and ponder on the earlier environment, in order to know the reason of any types of behavior. For example the origin of criminal tendency in the adolescence is due to some qualities of environment. Changing environment is important for the changing of behavior. He has considered stimulated process very important. He has considered the external observation capable behavior as an important subject of psychology because it can be seen experienced and evaluated and this behavior can be investigated scientifically. A man's behavior can be determined and controlled by the rules of learning. **Skinner** has described two types of behavior—Stimulus produced behavior and action produced behavior. Whose responses go on and produce due to the known stimulus, is called produce stimulus behavior. It is necessary for action produce stimulus to have connection with some known stimulus. Stimulus produced and action produced response are related to conditioning, which we called S or R types. The connection of S types conditioning with stimulus produce behavior is so, because reinforcement is connected to stimulus. It has been clarified with the theory of Pavlov. S types conditional stimulus (sound of bell) has been presented with unconditional stimulus(food),which obtain the quality of unconditional stimulus. R type conditioned is which called action produce is conditioning. Action produce conditioning is known by the name of Operant conditioning. Here operant conditioning name has been used.

Some psychologists have called operant conditioning by the name of Instrumental learning and Instrumental conditioning, because it includes the learning of such responses which are accomplished. It is a medium in achieving the food, in the solution of suffering and punishment and obtaining the goal. So some psychologists have called it as 'material conditioning'. Pavlov's classical conditioning does not accomplish anything, in it, there is only the establishment between stimulus and response.

Notes Sometimes in the instrumental behavior, included behavior is called conductor behavior, because it conducts the environment.

Instrumental Conditioning

Skinner's Box—Experiment, which has been described further, clarifies the instrumental learning and in fact the fundamental symptoms of most of a man's learning. Man, in the beginning, is motivated by some purpose, such type of response happen within the motivation general concluded process, which is used as a medium in the achievement of goal. Thus, in the attainment of any special goal whatever learning takes place, it is called instrument.

Like the **Pavlov's** classical conditioning, Reinforcement is an important element for the learning of Instrumental learning. All the elements of classical conditioning are found in the operant conditioning. Yet there are some differences in them. In Pavlov's classical conditioning theory, a dog was tied with the table and did not perform any action. In the experiment of Skinner rats are active. So this theory has been called operant (which is originated from the action) theory. Being operated, a creature gets some instrument and after doing again and again he reinforces that instrumental process. This name depends on the fact that a man does action for getting some reward or doing reinforcement in his environment; reinforcement is the attainment of that goal, which can satisfy motivation, as- in the 'Skinner Box' having the food of a hungry rat was the reinforcement. Skinner, who has used action produce and operant words, according to him, behavior is to do action for the obtaining any result towards environment, as- food, water, or achievement of any reward. It is clear that Instrumental learning or name of conditioning is the behavioral side of operant conditioning theory.

In the theory of Skinner, operant is the main thing, so it is important to understand it.

The Meaning of Operant—In the Skinner' theory, the operant means, action producing response or the collection of responses, by which a man attains goal and he something gets from it. This is such a learning behavior, which is used as an instrument of getting reward and outcome. Prof. **K.P. Pandey** has given the definition of operant in the following way—

''An operant is technically defined as a group of responses or set of acts which are controlled by the similar consequences.''

Prof. S.S. Chauhan has defined operant in the following way—

''The term operant emphasizes the fact that behavior operates upon the environment to generate its own consequences.''

This conclusion comes from the above opinions that operant is the some kind of behavior, but this behavior does not remain under the control of its former stimulus. It is the quality of operant behavior, that it is operated on the environment and generates outcome. According to Skinner, operant behavior is generated by the man not by stimulus. He has used the word 'operant' for this reaction.

Skinner has presented the opinion of S type conditioning in place of R type of conditioning, which means—the conditioning and connection of outcome of response with the attainment, with the help of it operant conditioning theory is derived, so now the opinion of operant conditioning theory should be understood. The opinion of operant conditioning theory is following—

Operant Conditioning

Operant conditioning theory can be understood easily in the perspective of Pavlov's classical conditioning. We saw in the classical conditioning that food (one stimulus) is conditioned with the sound of bell

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(other stimulus). This is S type conditioning. In which response is connected with S. S-R theory which is developed by Pavlov ,Thorndike and Watson, moving forward Skinner conditioned the responses expressed in Thorndike S-R bond theory by the attainment and prize, which helps in the reinforcement of a learning response. So skinner's theory is also called S-R Conditioning with Reinforcement. It is cleare that Skinner's theory is affected by Thorndike's 'rules of effect', because its reward is like the 'indirect reinforcement of getting pleasure and satisfaction' of Thorndike. A human wants to get some pleasure by some responses. These responses become the equipment of attainment. Material responses make a person operant for attainment of result. This is operant conditioning, because this conditioning depends on the response. So this is R type conditioning. The opinion of Operant conditioning will be clearer from the following statements—

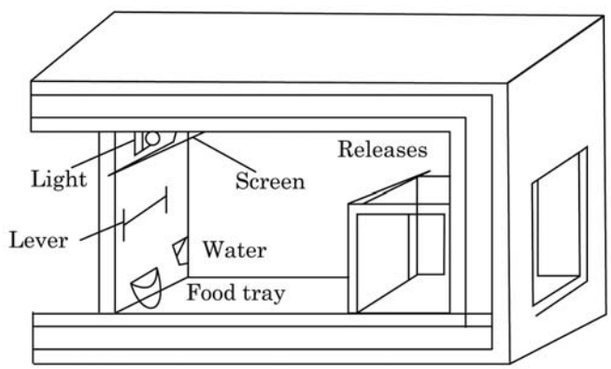
Skinner—"Behavior is the movement of an organism or of it part in a frame of reference provided by the organism itself."

"Operant conditioning is the learning process where by a response is made more probable or more frequent."

Pandey—''An operant conditioning is a process in which the behavior of an organism is emitted rather than elicited one (operant behavior) and is strengthened, in the sense of becoming more likely or probable or frequent to occur, through reinforcement.''

Skinner did many experiments to display the process of operant conditioning. Operant conditioning theory can be learnt by his one important experiment.

Fig. 10.1



The experiment of Skinner

An experiment done on the rats is following—

Skinner prepared a box for experiment which is called Skinner's box. A lever was added with this box. Which was connected to a bowl, and by the side of lever there was a hole for the entering of rats. After pressing the lever the sound 'khatt' was echoed, and food come into the bowl. In this box a white hungry rat entered into the box by the path, prepared by the side of lever. Rat wandered here and there and leapt and jumped, naturally the lever was pressed by rat. Food came into the bowl with the sound of khatt. Rat ate the food. Naturally the lever was pressed again by the rat and food came with the sound of khatt, which was again eaten by rat. Later on pressing the lever and having the food, it was seen that rat started to live by the side of lever, pressing the lever, eating the arrived food, the rat was set with comfort. After the repetitions of this experiment, Skinner saw

that on being hungry, rat began to press the lever. This conclusion was found from this experiment that "if any strength providing stimulus is got after any action, there is growth in the strength of that action."

Skinner did not see in his experiment under which conditions does the lever presses, rather he watches the event of response by pressing the lever. He considers this response as an emitted response. According to **Psychologist Stephens**—This theory can be understood in this way—"whichever type of study includes such emitted responses, it is the suggestion of Skinner for their explanation, whatever response help in the reinforcement that will be reinforced, means the response will be more reinforced. This is the general tendency of above response, which is reinforced, that this response is reinforced only. It is not any S R tendency or condition. Rat presses the lever and gets the food, thus rat's possibility of pressing the lever is developed and this response is reinforced and rat even after having the food, presses the lever."

It is clear from the description of this experiment that rat is inspired by the reward (food) and reinforced for doing some actions. Rat's continued attempts is due to the reinforcement. It is also clear from this experiment that learning is a sequence process, which is developed by the efforts and goes on to be stronger.

He did his second experiment on the pigeons. Skinner used another special technique for the experiment on the pigeons, which is called pigeon Box. The experiments done on the pigeon, Skinner put this aim that pigeon, after completing a whole round from the right side, learnt to peck on a certain place. With this experiment, hungry pigeon which was imprisoned in the pigeon box, as soon as flying toward the right side and started to peck on the certain place, he got a grain of wheat. By this wheat it got strength for the repetition of its behavior, and moving towards the right side it respond to peck the beak. Consequently he got a grain of wheat and that's why the pigeon learnt the way to get the grain (food) by the pecking beak and moving toward the right side.

Skinner gave birth to a new conditioning theory in the field of learning by his experiments. He found the conclusion that our learning related behavior is moved by the operant conditioning. Our behavior and response is like operant conditioning to some extent.

Skinner gives a lot of importance to reinforcement in his experiment, on which, his learning theory depends. So it is necessary to understand the opinions on reinforcement.

Did u know? Skinner did many experiments on the pigeons and rats to expose operant conditioning process.

Concept of Reinforcement

In the learning whichever effect falls on the responses, for its explanation Skinner takes the support of the opinions on reinforcement. According to him whichever response will help in reaching the reinforcement, only that will be strengthened. Reinforcement is not the firmness of S-R Bond, in it, emitted responses play an important role, and there is creation of a reserve of responses with each reinforcement. The process of Reinforcement happens on the basis of reinforcement elements, as- getting the food after pressing the lever. Getting the food is reinforcement and the response of pressing the lever is the reinforcement of increasing strength. **Hulse**, **Deese** & **Edeth** have defined the reinforcement in the following way:

"A reinforcement is a stimulus event which if it the proper temporal relation with a response, tends to maintain or the strength or a response or of a stimulus response connection."

Notes

Types of Reinforcement—the types of reinforcement can be divided into two groups—

(A) In Group (1) Positive Reinforcement

(2) Negative Reinforcement

(B) In Group (1) Primary Reinforcement

(2) Secondary Reinforcement

Positive Reinforcement—Positive Reinforcement includes those stimuli of Reinforcement whose presences increase the strength of response. As—Food, is a positive reinforcement for a hungry man. In the positive Reinforcement, a man does some positive response for getting something. It is signed by S^+.

Negative Reinforcement—Negative Reinforcement includes those stimuli Reinforcement whose absence help in the development of growth. As—if a child does not eat the food under the fear of dog, after going away of the dog he eats the food. In this condition the absence of dog is negative reinforcement. It is signed by S^-.

Often punishment is taken as a negative Reinforcement, but there is difference between them. Negative Reinforcement develops the strength of any response with its absence while punishment makes the strength of any response weaker. Punishment diminishes the probability of this happening in a response.

Primary Reinforcement—In the Primary Reinforcement, Reinforcer is that stimulus whose presence makes any response stronger, and its relation is established with the needed physical arrangement as-hunger, thirst, work, security. For example rat gets the food after pressing the lever.

Secondary Reinforcement—Secondary Reinforcement includes those stimuli of response, which make strength of making any response stronger due to their continued presence with the primary Reinforcement, means secondary Reinforcement are those Reinforcement which do not have the capability in themselves but joining with the primary Reinforcement, they get the capability of doing Reinforcement. For example in the primary Reinforcement if sound is echoed with the food, then sound even without food, does the response of Reinforcement, it is called conditioning Reinforcement.

Reinforcement is done after making a certain plan, which is called the schedules of Reinforcement. Its summary is following-

Task Write the effect of Reinforcement in the process of Reinforcement.

Schedules of Reinforcement

The process of providing Reinforcement is called conditioning, which can be given by the continued plan making. This continued plan is called the schedules of Reinforcement. Behavior can be adopted according to the expected goal by the well planned schedules of Reinforcement. **Ferster** and **Skinner** have described sixteen different schedules of Reinforcement in the experiments of operant conditioning. Mainly the schedules of Reinforcement are made in two ways.

(a) Continuous and Non-Intermittent Schedules—In which each emitted response is reinforced and there is extinction without being reinforced.

(b) Partial or intermittent Schedules—In which, only the partial schedule of response is followed by the reinforcement.

On the basis of above schedules, following four types of schedules can be developed-

(1) Fixed–Ratio Schedule—It is called in brief FR. In it, a man is reinforced for a response after many fixed response. As—After the five responses, the reinforcement of one response. Here the average is 5 : 1.

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(2) Variable-Ratio Schedule—In brief it is called VR. In the arrangement of this schedule, the counting of expected response is changed into average margin for the Reinforcement. As—once fourth response is reinforced in the second time six and third time first response was reinforced

(3) Fixes Interval Schedule—In short it is called FI. In which the Reinforcement of response is done on a fixed interval time, As – To do Reinforcement after five minutes.

(4) Variable Interval Schedule—In short it is called VI. In which the Reinforcement of response is done on variable interval time. As—to do the reinforcement of any response sometime 2 seconds and sometimes fives seconds and sometimes after the eight seconds.

The Effect of Reinforcement—In the process of Reinforcement, the following effects come from the reinforcement factors:

(1) To make a behavior stronger.

(2) To make sides fixed for providing any happening of the behavior.

(3) Changes take place in the behavior immediately. The changed behavior is stable for some time and it becomes weaker in the absence of the further reinforcement and finally it disappears.

The Use of Reinforcement Theory in the Education—There are the following uses in the Reinforcement theory—

(1) This theory is very important in the education, because it forces on the activity of children.

(2) This theory strengthens the notion that on the notion any activity can be increased the children by awarding the specific prize.

(3) A child can be prepared for the satisfaction of result forever after considering this theory.

(4) Giving prize and appreciation has an important place in giving education to the child.

(5) By the effect of this theory, changing educational method according to its need, a child's interest can be awaken towards the study.

Self Assessment

Tick right or wrong in front of given statements:

1. Skinner experimented on wild monkeys for the display of his theory. ☐
2. Skinner has considered the external observation probable behavior as the important subject of psychology, because it can be seen, guessed and evaluated. ☐
3. It is illogical to call operant conditioning as instrumental conditioning. ☐
4. Skinner did his experiments on the rats and pigeons. ☐

12.2 Educational Importance of Skinner's Operant Conditioning Theory

Operant Conditioning Theory has an important place in the education. This theory is used in the teaching of different subjects in the class learning. The use of pre-planned direction in the educational machine depends on this theory of learning, and it is delivered by Skinner. The statement prepared in the sets of frame in the education machine, is presented serial wise. When student press the component of machine, the correct answer comes in front of him. This reinforcement can be positive and negative. Correct answer verifies learning, and he is further motivated for learning, and in this way, there is reinforcement of right answer. Programmed learning depends on this theory, in which student does his reinforcement himself after getting the right answer. Following things can be said related to the educational importance of this theory from Skinner:

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(1) Parents and teachers can develop desirable behavior in the children with the help of this theory. Children are encouraged with the reinforcement of desirable behavior. In the class, teacher can do the desirable process of reinforcement by smiling, appreciation, and by giving more marks.

(2) The good behavior of children, the reinforcement of getting home work or other success should be done immediately by rewarding him.

(3) Attention shall be paid to the needs of children in the different activities of school.

(4) This theory encourages for motivation, so, after explaining the object of subject matter, teaching in the class, children should always be inspired in the class.

(5) This rule can be used for the improvement of bad behavior of children.

(6) The theory of reinforcement can be helped in the skill development, adjustment and social learning of children.

12.3 Summary

- 'Operant Conditioning Theory' is a method of learning, which was developed by an American scientist **B.F. Skinner**. His learning related opinions began to spread almost in 1932 century. His two books 'The Behavior of Organism' and 'Beyond Freedom and Dignity' are famous. Skinner's name is mainly known in the list of behavioral scholars.
- This type of behavior lives under control of stimulus. For example, the excretion of saliva after taking food in the mouth is respondent behavior.
- This behavior is not under the direct control of stimulus. It is embed in the self desire of learner. Operant behavior does not happen until a man is willingly ready for doing this type of behavior. For example, in the experiment of Skinner, the behavior of rat is operant. In the same way after ringing the bell, opening the door or not depends upon the desire of a man. On ringing the bell, opening the door related behavior is operant behavior.
- Operant Conditioning Theory' is a method of learning, which was developed by an American scientist **B.F. Skinner**, who has described the two types of behaviors, Respondent Behavior and Operant Behavior.
- According to him, the fundamental basis of human behavior is observed in the correlation of stimulus response relationship. In the explanation of human behavior, former psychologists delivered the concept of reinforcement, which Skinner developed through schedules of Reinforcement further. He has imagined a such version of society in his ideal novel 'Walden Two' in which human behavior can be determined and controlled in a well organized way by awarding prize.

12.4 Keywords

1. **Conditioning**—Adopting according to the situation.
2. **Reinforcement**—To provide strength.

12.5 Review Questions

1. Throw some light on Pavlov's conditioning reflex theory.
2. Explain the importance of operant conditioning theory.

Notes

Answers: Self-Assessment

1. Wrong
2. Right
3. Wrong
4. Right

12.6 Further Readings

Books

1. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi.*
2. Psychology—*Dr. Saryu Prasad, Agra book Store, Agra.*
3. Psychology–The Study of Human Behavior—*Brij kumar mishra, P.H.I. Learning, New Delhi*
4. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*

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Unit-13: Kohler's Insight Theory

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13.2 Educational Importance of Kohler's Insight Theory

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Objectives

After the steady of this unit, the student will be able to—

- Understand learning related Kohler's Insight Theory.
- Understand educational importance of Kohler's Insight Theory.

Introduction

Kohler's Insight Theory depends on the concepts of Gestaltists. Kohler himself had a distinctive place among the Psychologists who developed Gestaltism. The founder of Gestaltism was Max Wertheimer. It is necessary to understand the concept of Gestaltism for the understanding of Kohler's Insight Theory. The meaning of Gestalt is 'whole form'. Gestaltism means presenting the whole form as a figure. In the words of **Vardimer**—"The characteristic of any whole form is determined by its nature or internal organization but not by its individual elements." It is considered under the concept of Gestalt the the form of anything is not to be seen as small parts but as a whole, this is because it is bigger than that of whole parts. The reaction towards the evidence of images established in the environment depends on the stimulating conditions; we learn any new thing after the creation of a new whole figure. This process of organization or reorganization that is presented in the form of changes happening in the responses, is called learning. The learning related concepts of Gestaltists are following—

According to the Gastaltists—Gastaltism is developed by the German Psychologists (Vardimer, Kolfa and Kohler) as a consequence of running the Buddhist movement. It was primarily related to the observation in the beginning but learning psychology as well came under its coverage later on. Gestalt theory developed in the response of association theory. According to it, a man learns the

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whole nature of any thing fragmentally, means whatever we watch, hear and feel, its whole figure is so large that after jumbling up the different parts of it, a large figure of that thing appears. According to the Gestaltists—"A Gestalt of form is a whole characteristics of its individual elements, but by the internal nature of the whole."

In learning, a man keeps watch on the whole condition, and then finds out the solution. Under this theory, in the process of learning, there is an internal insight for succeeding in the solution of any problem.

Did u know? The thought of learning by the internal insight, in the field of learning is the alternative of Pavlov conditioned theory, Thorndike's stimulus-response bond theory and Skinner's Operant conditioning theory.

Gestaltists talk about the memory symbol, these memory symbols are totally collected. These memory symbols go on changing from one situation to another; these changes can be brought by thought or time interval, the way in which they are recollected, it is related to Gestalt learning. Famous Gestaltist Kohlar has presented the insight theory of learning, in which relation the following things are stated—

13.1 Kohler's Insight Theory

German native **Wolfgang Kohler** was sent to Teneriffe situated in Canary island for the study of human psychology in 1913 by an organization "Prussian Academy of Science",where he studied the chimpanzees extensively in places that were desolated in the beginning of first world war. He has presented this description in his book 'Mentality of Apes' in 1925. In this book he has presented his theory of insight on the basis of the outcomes of many experiments done on the apes. The important element of his theory is insight, so it is necessary to understand insight.

Meaning of Insight—During the time of solving any problem when suddenly any solution comes in mind, the change that happens rapidly in the observation is called insight. In the reference of learning, insight is the catch of whole condition. In fact insight includes in watching all the situations as a collected lot. In the learning psychology we see that a living being learns by trial and error or by following others. But there are such activities which he learns soon without discussing with anyone through his idea. This immediate plan is insight, by which a man learns. According to Good- "Internal knowledge or insight is the sudden, definite and current knowledge of real condition."

According to **Kohler**, "In more than one technical ways, the meaning of insight is to get the solution of any problem at once, by which, such a procedure begins that moves according to the situation and brings the solution of problem in the form of direct knowledge and data. He says that the real creation of any condition should be opened upwards for the observation."

Learning by Insight—According to Kohler a man cannot learn by the trial and error, but first he does the direct observation of problematic situation through his mental strength and intellect. Then he does some responses. The learning process happens on the basis of alternative presentation of whole situations. When a man comes under a situation, he establishes relationship with the different elements and things and does conditioned responses after understanding the whole situation very well. It is the indication of insight to have the understanding of all the situation and then reacting. So this is called learning by insight, which we give the name of internal sight.

Notes

Notes The capability of learning is found in men and animals. Insight is related to intellect, rumination and imagination. Mental efforts are done in the learning of this method.

The characteristics of learning by Insight—The important characteristics of learning by insight are following—

(1) In the learning by insight, first a man observes the entire situation and then establishes the connection between problem and situation.

(2) After watching the *problem* and situation and doing efforts suddenly he gets the result, although he gets success after a period of trial and error behavior yet this behavior is not the useless trial and error. It is the direct effort of definite and problem centric solution.

(3) All efforts of the solving a problem are connected to one another and help in the changing and organizing of proper behavior.

(4) After some efforts, the insight of sudden solution comes in a man.

(5) A learner feels helplessness before insight, but he becomes expert after finding the solution of one problem by insight. Thus, learning by insight moves towards the skillfulness from helplessness.

(6) Skillfulness learnt by insight can be repeated and transformed under the new situation. High level of solving a problem and capability of good transformation also come in a man.

(7) Insight depends upon the understanding, which is connected to the intellectual level. More insight is seen in the creature of higher level than that of low level.

(8) Insights also affect the period of learning.

(9) The insight is also affected by experience in learning. However more experience does not mean more insight.

Task Which theory, the Gestaltism developed in response of?

The experiments of Kohler

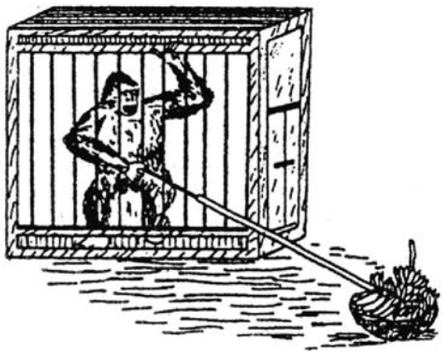
By the experiments of Kohler, his insight theory can be evidently understood. He did many experiments on the chimpanzee in the Tenerife Island. Kohler started his experiment by keeping six apes in the cage of wood. There was an intelligent ape among them who was named Sultan by Kohler, and mostly experiments done on Sultan. Kohler presented two types of problem in front of Sultan. Stick problem and Box problem.

Stick Problem Related Experiments—A chimpanzee was kept in a cage and a Sharp Stick was put by it side and bananas were put outside of the cage, which he could not get by stretching his hands out. Chimpanzee first tried to get the banana by spreading its limbs but he could not get the banana. After some time he picked up the stick lying by the side of cage and pulled the bananas with the help of it. He was satisfied after getting the bananas. After using the sticks he got the bananas, which was the outcome of his insight.

After this Kohler put two sticks in the cage which could be made longer by fitting into each other. Bananas were kept outside of the cage at a distance. Hungry ape tried to get them after spreading the hands but being failed he tried to get the bananas by a stick—Again he could not get success, then he started to play with the both sticks suddenly the one side of the stick was fitted with the another side of it. And

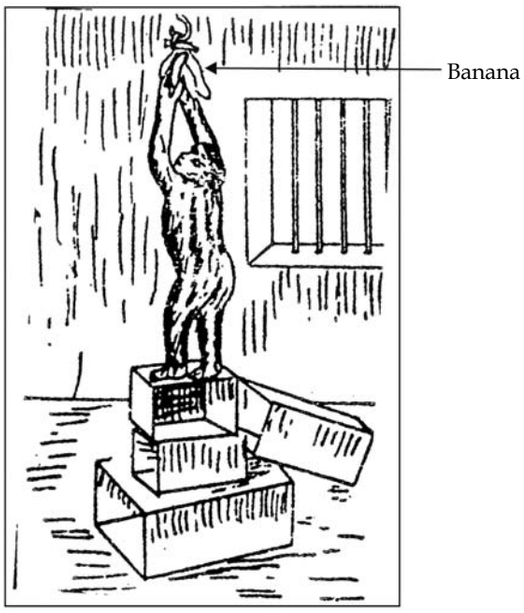
after the joining of one stick with the other, it became longer. He got success in getting the bananas like earlier. In the second day again an ape was kept in the same condition, and it was seen that after joining the sticks soon he pulled up the bananas without wasting the times. Ape got this insight suddenly. Before getting the insight, ape tried to establish the connection among the conditions of the cage, the distance of bananas and the length of stick and got the goal after resolving the problem by insight.

Fig. 11.1



Box Problem Related Experiments — In the Box related experiment Kohler kept Sultan in a cage. A bunch of bananas was hung from the ceiling of the cage and a wooden box was kept in the cage. Bananas were out of it reached. First he tried to get the banana after leaping and springing but could not get success. And he wandered here and there in the cage and kept on watching on the box, suddenly he pulled the box under the hanging bananas and climbing upon the box he got success in getting the bananas.

Fig. 11.2. Box Related Experiments



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Second day again a hungry ape was kept inside the cage but this time the bananas were on the more height. And there were two boxes in the cage. After wandering to and fro he came to the boxes and after pulling up the box he brought it right under the bananas, yet he could not get it. Then he put the second box upon the first box and got the bananas after climbing on it. Here ape established the connection between the two boxes. In this way three boxes by putting on one another, Ape learnt to get the bananas.

Self Assessment

Fill in the blanks:

1. Kohler's theory of insight ..... depends on the thought.
2. Kohler's learning theory ..... is called the theory.
3. Kohler did his experiments on ..... .
4. Kohler kept his chimpanzee's name ..... .

The Conclusion of the Experiments—From the above experiments of Kohler the conclusion comes that process of any action related to mind can be done on the two level—

(1) Learning at Perceptual Level

(2) Learning at Conceptual Level

A human being at the perceptual level, with the help of sense organ and after having the perceptual knowledge of entire situation, does reaction and then he learns. A man is thoughtful and wise by the insight. So he watches troublesome situation entirely and finds out the solution of his problem soon. We can say that the process of learning is at the perceptual level in the experiment related to the boxes.

In the process of learning at the conceptual level mind helps, when some complicated situation is originated in front of any one and he has to take the support of intellect with the physical capabilities. Kohler's stick related experiment indicates it.

The helping factors producing insight—It is known through the conclusion of above experiments that insight arising helping factors are following—

(1) The observation of entire situation and problem—After studying the whole thing, the whole situation is known.

(2) Intellect—There is more capability of insight in intelligent people. And in the dull minded people, less capability is found.

(3) Trial and Error—In the process of doing trial and error, suddenly an insight is produced.

(4) Experience—According to this theory, there is a transformation of experiences in learning. This experience after being organized adopts the form of Gestalt or whole. As a chimpanzee did many unsuccesful efforts to get the bananas after climbing upon the box and did not succeed, then putting one box upon another and got the success. In this way a man makes rules on the basis of watching, trial and error and all past experiences, and after organizing them Gestalts are prepared.

Thus it can be said that learning by insight is a high level learning, because it includes mental efforts, and there is the use of intellect and imagination in it. A man learns after observing the condition on high intellectual level and understanding and reacting to the entire aspect of problem. Here, it is proper to say that the learning method by insight has been hidden in the method of learning by trial and error. In resolving any problem, not only insight works but thinking and trial also used. For example- during the time of resolving math problem effort and insight both work. Then result comes.

Difference between the learning method of 'Trial and Error' and 'Insight'—In short, the following differences are found between both learning method.

(1) Trial and Error method focused on the motor skill due to depending on the motor level, while in the learning by insight the use of mind and intellectual skill is more focused.

(2) Every one can use Trial and error method, but common intellectual level is needed for the use of insight method.

(3) Trial and error method especially depends on the exercise, inspiration and emotion, while insight method depends on observation.

(4) Trial and error method depends on the practice and hard work, while the insight method the solution of problem comes suddenly.

(5) In Trial and Error method, each time new effort has to be done in a new way for the new problem, while in insight method problems are resolved in the absence of practice.

(6)In trial and error method the focus of a man is towards the goal ,while in insight method, the unconscious mind is more active- conscious activities happen less.

(7) In trial and error method mastery comes slowly, while in insight method mastery comes quickly.

(8) Trial and error method is useful for learning any skillfulness in sequence, while in the solution of any problem insight method is more useful.

It can be said in the conclusion that as the trial and error method cannot be used in the all levels of learning, in the same way insight method is not completely faultless. In fact both the methods should be used in the learning according to the situation.

13.2 Educational Importance of Kohler's Insight Theory

The importance of Gestalt and insight theory in the education is following—

(1) This method provides appropriate opportunity for the development of imagination, discussion and thinking power of the children.

(2) This method can give more help in the creative work.

(3) A child himself is always ready for acquiring the knowledge after searching by this method. The knowledge which he gets in the special condition, he arranges that generalization in his mind properly. And this process helps him in the learning. For example- after eating the green unripe mango, he knows about the generalization of mango, that all the green unripe mangoes are sour.

(4) This method has proved more useful for math, science. In resolving new problem of math, he uses new ways and formula by his insight.

(5) Insight method is necessary and more useful in the research works of the higher level of education.

(6) According to **Crow** & **Crow**—''This method is more useful in art, music and literature.''

(7) A teacher should present a complete problem in front of student, as—in the geometry complete problem should be presented not formulas.

(8)A teacher should keep in mind the rules of readiness for the successful use of this method and student should always be prepared for grasping the situation.

(9) A Student should be inspired by the teacher for the learning till then he does not get the solution of the problem. By the effort of teacher, curiosity and interest develops in the students. So it is his duty that he develops the interest and curiosity in the student in this type of learning.

(10) This theory forces on the organization and completeness of experience, so teacher should help the student in the reorganization of the experiences.

(11) The solution of a problem should be presented in proper way not in improper way. Student learns the entire things first, then its parts. According to Gestaltist-"We come towards a part from the whole, not towards the whole from a part.''

Notes

13.3 Summary

- Kohler's Insight Theory depends on the concept of Gestaltist. Kohler himself had a distinctive place among the Psychologists who developed Gestaltism. The founder of Gestaltism was Max Wertheimer. It is necessary to understand the concept of Gestaltism for the understanding of Kohler's Insight Theory. The meaning of Gestalt is whole form. Gestaltism means the concept of presenting the whole form as a figure.
- Kohler's insight theory depends on the thought of Gestaltist. Gestaltism means, the concept of observing any figure completely or entirely.
- According to **Kohler**, "In the technical way the meaning of insight is to hold the solution of any problem at once, by which such a procedure begins that moves according to the situation and brings the solution of problem in the field of direct knowledge and in the context of counting. It is his saying that the real creation of any condition should be opened upwards for the observation."
- A Student should be inspired by the teacher for the learning till then he does not get the solution of the problem. By the efforts of the teacher, curiosity and interest develops in the students. So it is his duty that he develops the interest and curiosity in the student in this type of learning.

13.4 Keywords

1. **Insight Theory**—The theory of internal sight.
2. **Mastery**—Skillfulness, expertise.

13.5 Review Questions

1. Describe Kohler's learning related 'insight Theory'.
2. Throw light on the characteristics of Kohler's 'Insight Theory'.

Answers: Self-Assessment

1. Gestaltist 2. Insight 3. Chimpanzee 4. Sultan

13.6 Further Readings

Books

1. Educational Psychology—*S.H. Sinha and Rachna Sharma, Atlantic Publication, New Delhi.*
2. Education Psychology—*S.K. Mangal, PHI Learning Pvt. Ltd., New Delhi.*
3. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*
4. The Information and Importance of Education in the Children—*Seema Chopra, Hindi Book Center, New Delhi.*

Notes

Unit-14: Nature and Theories of Intelligence

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Objectives

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14.2 Characteristics of Intelligence

14.3 Difference between Intelligence and knowledge

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14.8 Further Readings

Objectives

After the study of this unit, the student will be able to—

- Understand the nature of intelligence.
- Understand the characteristics of intelligence.
- Explain the difference between intelligence and knowledge.
- Understand the types of intelligence.

Introduction

Intelligence is a common word in daily life, which is used in many meanings. During the time of studying personality differences in detail, we will see that two persons are not similar, some are more intelligent and some are dull minded, some are slow and some resolve the problems within few minutes. There are many reasons for personality differences, among which Intelligence is important. Mental ability of a child is affected by his intelligence. This is a universal truth that, an intelligent man gets success in all the spheres of life, on the other hand a proper environment is also needed for his development. Intelligence is not one quality in itself but a collection of many qualities. A man cannot be called intelligent or dull minded, until the intellectual characteristics in his behavior are tested. Intellect cannot be seen directly, so we can say that intellect is an imagined power. A man mostly uses intellect in understanding the

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different problems and in learning them. It is necessary to know his intellectual level and mental capability for mental development. From this point of view this question should be pondered "what is intellect?"

14.1 Nature and Definition of Intelligence

"What is intellect?" Psychologists have different opinions in regard of this question. Different Psychologists have described the nature of intelligent according to their opinion. So we can understand the nature of intelligence after studying the definitions given by them. The definitions given by psychologists are following—

1. **According to W. Stern**—"Intelligence is a general capacity of an individual consciously to adjust his thinking to new situation."
2. **According to C. Burt**—"Intelligence is the innate capacity to adapt relatively to new situations."

Notes Intellect can not be seen directly, it's an imagined power.

3. **According to A. Binet**—"To judge well, to comprehend well, to reason well, these are the essential activities of intelligence."
4. **According to F. Galton**—"Intelligence is the power of recognition and learning."
5. **According to L. Terman**—"Intelligence is the capacity to carry on abstract thinking."
6. **According to Thorndike**—"Intelligence is the power of good response from the point of view of truth or fact."
7. **According to Buckingham**—"Intelligence is the ability to learn."
8. **According to W. C. Dougall**—"Intelligence is the capacity to improve upon innate tendency in the light of previous experience."
9. **According to Wells**—"Intelligence is the ability of adjusting to new situations."
10. **Spearman**—"Intelligence is the power of attention."
11. **Stout**—"Intelligence is the general ability of the individual."
12. **Woodrow**—"Intelligence is an acquiring capacity."
13. **Ebbinghans**—"Intelligence is the power of combining parts."
14. **Wechsler**—"Intelligence is the aggregate or global capacity of the individual to act purposefully, to think rationally and to deal effectively with his environment."
15. **Garret**—"The ability demanded in the solution of problems which require the comprehension and use of symbols, i.e words, numbers, diagrams, equations, formulas."
16. **Woodworth**—"Intelligence is a way of acting."

14.2 Characteristics of Intelligence

On the basis of the definitions given by psychologists, intelligence has following characteristics—

1. Intelligence is an innate power. It is gained from heredity.
2. Intelligence is the power, by which, a man organizes his behavior according to the situation after removing its complication.

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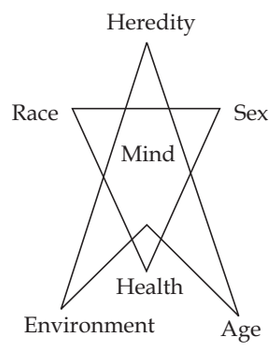
3. Intelligence is the capacity of learning.
4. Intelligent is the ability of taking advantage from previous experiences.
5. Intelligence is the ability of abstract thinking, means with the help of intelligence we can think of something which is not evident.
6. Intelligence is the set of different abilities.
7. Intelligence is the essence of all special abilities.
8. Knowledge obtained by intelligence can be used in new situations.
9. There is difference between intelligence and knowledge.
10. Due to the sexual differences, difference is not seen in intelligence.
11. Intelligence is the power of introspection. Intelligence itself criticizes the actions and thoughts done by a man.
12. Intelligence tries to understand any problem, and then inspires the mind to take decision.

Factors influencing the intelligence— There are many factors influencing the intelligence—

Fig. 14.1



1. Heredity— Many psychologists did various experiments in this context and found out the conclusion that heredity effects intelligence. As Freeman considered that intelligence is closely related to heredity. **Gesell and Galton** found out the conclusion that intelligence is more effected by heredity not by environment. **Pearson** proved this on the basis of his study that the children of intelligent parents are also intelligent to a large extent. Besides it, Psychologists like Schvesinger, Dason, Newman also considered that intelligence is more effected by heredity. So it is an important factor.

Environment— Many psychologists also did many experiments in the relation of environment. They believe that intelligence is more effected by environment than heredity. Kodak studied such eighty mothers who had brought up their children in good environment to know the effect of environment on intelligence. **Wellman** Leahy and Skeel also proved on the basis of his experiment, if a child is provided good environment, big changes can be brought in his intelligence. The psychologist of this belief also accept that intelligence is more affected by environment.

Age— The relationship between intelligence and age is also accepted as an important factor. Many experiments and study have been done in this context. As by- Terman, Miles & Miles, Johns, Thorndike, Spearman etc. On the basis of all these experiments it has been concluded that, generally intelligence grows from the age of 16 to 20 years, but in India it is considered that the development of intelligence happens till the age of 25.

Race— Psychologists also accepted the effect of race on intelligence in their study and reached on the conclusion that race difference has no effect on intelligence. There are three groups of people are found

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in all the races - intelligent, common and dull minded. Their percentage can be more or less, however some psychologists considered that intelligence is also affected by the race.

Sex—Intelligence is affected by sex, or not, many experiments also have been done in this connection. Psychologist Witty considered that there is no especial difference between sex difference and intelligence, but if girls are not provided proper environment , their rumination side go backward, and the girls, who do not get liberal environment, are less intelligent than the boys. **MacMeeken** (1939) evaluated the intelligence of 875 children in his study, who were from Scotland. The evaluation of the intelligence of these children was done by Stanford Binet Test. After the study it was found that boys' IQ was on average was 100.5 and girls' IQ average was 99.7. Both the mean of I.Q and S.D was 15.9 and 15.2 respectively. Some psychologists' concept was that girls I.Q were more than that of boys from six to fourteen. After this at the age of sixteen both, girls' and boys' IQ is equal and after this age boys' IQ is more.

Health—As it is said that 'Healthy mind grows in healthy body'. It has been felt that from daily life's experiences that better is the health, better is the development of the intelligence in the child. So health also affects the intelligence of a person.

Did u know? It has been concluded on the basis of many psychological experiments that the development of intelligence happens between the age of 16 to 20, however it is believed that it grows till the age of 25 in India.

14.3 Difference between Intelligence and Knowledge

According to the psychologists there are following differences between intelligence and knowledge—

1. Intelligence is an innate power obtained by heredity, while knowledge is obtained power. Knowledge is attained in environment.
2. Intelligence is stable, knowledge is increased by gaining. Intelligence is not more or less, but knowledge can increase.
3. More intelligence can develop more knowledge, but more knowledge cannot develop more intelligence.
4. A man can be a scholar, but it is not necessary that he will be intelligent. In this way it is not necessary that whoever is intelligent, will also be a scholar.
5. To know many things is knowledge, but to use them is intelligence.
6. Psychologist Ross said that "Intelligence is the goal and knowledge is only a way to reach it."
7. Psychologist Ballard said that "Intelligence is a mental ability which is evaluated by the means like knowledge, interest and habit."
8. "In the worldly life intelligence the usable knowledge and thinking is intelligence." These thoughts have been expressed by Sir Adams.
9. If a man's intelligence is destroyed, his knowledge is finished.
10. Intelligent men can face difficulties easily, while scholars are unable in doing so.

Notes Explain the meaning of obtained and innate in the context of intelligence and knowledge.

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14.4 Kinds of Intelligence

Psychologist Thorndike has considered intelligence, as the collection of many abilities. He has given the following three types on the basis of it—

1. Abstract Intelligence
2. Social Intelligence
3. Motor or Mechanical Intelligence

1. **Abstract Intelligence**—Minor feelings are known by this intelligence. Poets, Author, Painter etc express their feeling by this intelligence. Words, digits and symbols are used in this type of learning. This is a process of learning the academics. And the processes of solving of those problem in which words and symbols are used. So it is the giving of abstract and oral intelligence to express the opinion by the medium of words and symbols. It is necessary to develop Abstracts intelligence in such subjects as- reading, Mathematics, Geography, History in school. New planning, new invention, new rumination is possible by this intelligence.

Abstract intelligence can be tested by three types—

a. Level of ambition—by the evaluation of the level of the ambition of a man, that man's abstract intelligence is known. Highly ambitious man will have high intelligence.

b. Doing different types of job—The man who are involved in different type of working, their capacity of working can be known under abstract intelligence.

c. Speed of doing work—the man who does abstract actions with high speed. His abstract intelligence will be less or more according to that.

Self Assessment

Put right or wrong sign in front of given statements:

1. Psychologist 'Galton has said about the intelligence—"Intelligence is the power of learning and recognition." ☐
2. Intelligence can be gain by effort. ☐
3. In India intelligence is developed till forty years. ☐
4. Intelligence is an innate and obtained power. ☐

2. **Social Intelligence**—This intelligence is related to the social conditioning, which helps a man in adapting according to the society. Due to the social intelligence, a man affects another man with his behavior. This type of man is happy, practical and takes interest in social activities. Due to the social intelligence a man leads a successful life in society. These types of men are occupational, politician and social worker.
3. **Mechanical Intelligence**—Mechanical intelligence means the power or ability, by which, a man can adjust himself with the situation related to mechanical or material things. The children, who have this intelligence, are seen in the starting period. They try to repair by opening their watch, toy and bicycle. Such children, after growing up, become expert mechanic, engineer. Mechanically intelligent children are expert in games and physical activities.

14.5 Summary

- Intelligence is a common word in daily life, which is used in many meanings. During the time of studying personality differences in detail, we will see that two persons are not similar, some are

Notes

more intelligent and some are dull minded, some are slow and some resolve the problems within few minutes. There are many reasons for personality differences, among which Intelligence is important. Mental ability of a child is affected by his intelligence. This is a universal truth that, an intelligent man gets success in all the spheres of life, on the other hand a proper environment is also needed for his development. Intelligence is not one quality in itself but a collection of many qualities.

- Various Psychologists have described the nature of intelligence on the basis of their thinking.
- Intelligence has some characteristics. Intelligence is the capacity of learning. Intelligent is the ability of taking advantage from previous experiences. Intelligence is the ability of abstract thinking, means with the help of intelligence we can think of something which is not evident.
- There are many factors influencing the intelligence: heredity, environment, race, age, sex and health.
- Psychologist Thorndike has considered intelligence, as the collection of many abilities. He has given the following three types on the basis of it, i.e. Abstract intelligence, Social Intelligence and Motor or Mechanical Intelligence.
  1. Abstract Intelligence
  2. Social Intelligence
  3. Motor or Mechanical Intelligence

14.6 Keywords

1. **Obtained power**—collected power

14.7 Review Questions

1. Explain the nature of intelligence.
2. Write the characteristics of intelligence.
3. Which are the factors influencing the intelligence? Explain in detail.
4. Explain the difference between intelligence and knowledge.

Answers: Self-Assessment

1. (✓) 2. (×) 3. (×) 4. (✓)

14.8 Further Readings

Books

1. Psychology—*Dr. Saryu Prasad, Agra Book Store, Agra.*
2. Psychology—*The study of human behavior—Brij Kumar Mishra,P.H.I Learning Pvt. Ltd., New delhi.*
3. Information on the importance of education for children—*Seema Chopra, Hindi Book Centre, New Delhi.*
4. Development of Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*

Notes

Unit-15: Intelligence Tests

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Objectives

After the study of this unit, the student will be able to—

- Understand the history of intelligence tests.
- Know the kinds of intelligence tests.
- Know the intelligence tests in India.
- Understand the intelligence measuring method, intelligence quotient and the utility of intelligence tests.

Introduction

As two men look different in their color, physique, height, and weight, so they are different in mental abilities. It is important in the field of education to study the differences in mental abilities. Keeping in mind the differences of the mental abilities of students, teachers have to arrange the educational work and divide the classes in different groups. The differences between the mental abilities and capabilities are decided by intelligence.

Notes

In education it is necessary to study the personality differences. Many methods are used for obtaining the knowledge of personality differences. Psychologists have made different tests for the measurement of personality differences. Intelligence tests have been prepared for the measurement of intelligence. Intelligence tests help in the solution of many problems related to education, so it is necessary to obtain knowledge about them.

15.1 History of Intelligence Tests

It is evident after describing the meaning, nature, kinds and theories of intelligence that psychologists define the intelligence as the ability of learning, ability of rumination and the ability of adjustment.

The credibility of intelligence and its connection goes to personality differences. In 1796 in Greenwich astrological laboratory, a man named Kinnerbrooke was appointed as an assistant supervisor. He studied the movement of stars, planets with the help of telescope and calculated the time. His speed was slow, so he was fired from the job. After some time astrologers pondered on this event and found out that every man has different ability and capability. So they developed the thought of personality equation.

In the modern times, scientific studies related to intelligence tests were started in Europe. The famous German Psychologist, Wundt established first laboratory of psychology in 1879. In this laboratory intelligence test was done on the scientific basis. Here the measurement of intelligence was done by the instrument. Being encouraged by the work of **Wundt**, the psychologists of other countries also started doing work related to intelligence tests. In this relation **Alfred Binet** of France, **Thorndike** and **Terman** of America have done works that worth mentioning. Other psychologists as **Galton**, **Cattell** and **Pearson** have also invented many intelligence tests, but these tests measured common mental activities, so these cannot be called intelligence tests. In this field the first and prominent was **Alfred Binet**. In 1950 Binet prepared exercise for the intelligence test of different ages' children with the help of psychologist Simon, which was called '**Binet-Simon Scale**'. Binet Simon Tests were considered in different countries. Then after 1908 Binet Simon Scale was improved in America and Europe. Terman in America corrected the name of Binet Simon Scale between 1913 and 1916 and kept its name Stanford **Binet Scale.** In 1937 **Terman**, in India, made some improvement in it with the help of **Merril** and kept its name **Terman-Merril Scale**. These tests are used for the measurement of intelligence for the children in America and India. Even in Indian psychologists' laboratory, Allahabad corrected Binet Simon tests for the Indian children. In India **Dr. Sohanlal, Dr. Jalota, P. Lajjashanker Jha** and **Dr. Bhatia** etc have prepared different tests.

15.2 Kinds of Intelligence Tests

Different psychologists have prepared different tests for the measurement of intelligence. It is evident from the study of intelligence tests' History that many intelligence tests had been prepared even before **Binet** in which Cattell's intelligence test was also present, but Binet, with the help of Simon in 1905 prepared an intelligence test, which has a scientific basis and which was used in different countries as a first famous intelligence test. Although after improving many things it has been given a new look yet many intelligence tests have been prepared in comparison of it. Today many intelligence tests are present, for the measurement of intelligence. If we put light on the kinds of intelligence tests, they can be divided between two groups—

(a) Personal or community intelligence test

(b) Verbal or non-verbal intelligence test

Intelligence test can be divided into four parts by the combination of above two groups—

1. Personal translation intelligence test

Notes

2. Personal non-verbal intelligence test
3. Community verbal intelligence test
4. Community non-verbal intelligence test

It is necessary to understand the differences and the nature of both groups before describing the different kinds of intelligence tests—

(a) Personal or community intelligence test—Personal intelligence test includes the testing of one man at a time, on the contrary, when many people are tested together at one time, it is called community intelligence test. Personal and community intelligence tests have some differences which are following-

Difference between personal and community intelligence tests

Following differences are found in the personal and community intelligence test

Personal Test	Community Test
1. This test takes much time.	1. This test is often completed within 45 to 50 minutes.
2. This test can only be taken by a trained man.	2. This test can be taken by a common man.
3. This is appropriate for the young children.	3. It is appropriate for the elders and adolescence.
4. This test has difficult questions.	4. It has easy questions.
5. There is difficulty in the making of this test's questions.	5. Questions are prepared easily in it.
6. This test is expensive.	6. This test is not expensive.
7. Child is often confused in this test.	7. In the community test, they support happily.
8. There is close intimacy established in this test between the child and invigilator.	8. There is lack of this thing in community test.
9. The results of this test are more valid and reliable.	9. The conclusions of community test are less valid and reliable.
10. In this test, community intelligence cannot be known.	10. Community can be guessed in the community test.

We can say after the above description that personality test is better in comparison of community test. Personality test needs more money, time and trained man, so community tests are used mostly. But as far as the question of validity and reliability, personality tests are appropriate.

(b) Verbal or Non-Verbal Intelligence Test—Language is used in the verbal intelligence test. Many questions are collected together in a small book in this test. In the verbal test words and digits are mostly used. In this test it is necessary for a man to have knowledge of language and digits. In non-verbal intelligence test language is not used. Some indications are indicated for doing some work in this test, so it is also called '**Performance Test**'. Performance intelligence tests are used for the people who do not have the knowledge of language or illiterate. Mostly non-verbal or performance intelligence tests are in the form of personality tests.

Did u know? In non-verbal intelligence, test language is not used, indications are provided for doing some works. So it is also called performance test.

Notes

Difference between verbal or non-verbal intelligence test

In verbal or non-verbal intelligence test, following differences are found-

Verbal Test	Non-Verbal Test
1. In verbal test, it is necessary for a man to have knowledge of language and digit.	1. In non-verbal less test it is not necessary to have knowledge of the language.
2. In verbal intelligence test the marking of responses is done after reading the instructions given in language and digits.	2. In the non-verbal intelligence test examiner gives oral instructions. The candidate verbal instrucions and functions. Instructions can also be written, but the response does not use words or numerals.
3. For the marking of responses in the verbal test, putting tick on the words/sentences, filling in the blanks, matching the correct responses are used as methods.	3. In the non-verbal test, to recognizing the picture completing the organs, making the figure, joining the parts according to the picture etc. methods are used.
4. In the verbal intelligence test, time limitation is not so important.	4. In the non-verbal test for the measurement of Intelligence, limitation of time is given importance.
5. The effect of the development of language affects the result of this test.	5. The effect of level of the knowledge of language does not fall on the conclusion of non-verbal intelligence test.
6. Mostly, verbal intelligence tests are taken in groups.	6. Non-verbal intelligence tests are often taken individually.

Now it will be appropriate to briefly describe the four groups of intelligence tests that emerge from these two broad categories—

1. Personal verbal intelligence test—One man is tested at a time in the personal verbal intelligence test. It is necessary for a man to know the language which is used in the test. Specific personality verbal intelligence test are following—

(a) Binet-Simon Intelligence Scale—Binet developed an intelligence test with the support of his companion **Simon** in the effort of recognizing weak students, which was published in 1905. Binet test is considered first among the successful intelligence tests. In 1908 and 1911, both tried to make it complete after doing corrections in it. This test is known with the name of Binet-Simon Scale test.

In **Binet-Simon Scale** test Intelligence is done on the basis of mental age. Some questions are given to know the mental age each year. The child who responds correctly to the entire questionnaire for the determining age, his mental age is calculated, for example, if five years child gives correct answers of the questions determined for four years' age, his mental age is considered to be four years, but if he answers correctly to the questions determined for the seven years, his mental age will be considered seven years. In the comparison of real age, if the mental age is more, the child will be considered more intelligent. This type of intelligence measurement is expressed as intelligence quotient. To know the intelligence quotient methods are given. Binet- Simon intelligence test was decided for 3 to 15 years old girls/boys, four questions were determined for 4 years' child and no questions were determined for 11 to13 years age. For three years' age, following questions were determined—

(*i*) Tell your name.

(*ii*) Point your mouth, nose and ear with your hand.

(*iii*) After seeing a picture tell some important things.

(*iv*) Repeat easy sentence of six words.

(*v*) Repeat two digits after hearing once. As 2-3, 3-7, 6-8 etc.

It was found in the final studies that Binet-Simon Scale had many faults. The main fault was if any child could not answer the questions determined for his age, his mental was considered less than his real age.

(b) Stanford Binet Scale— In spite of having many faults in Stanford Binet-Scale, it became world famous and got success in getting the attention of popular psychologists. To make Binet-Simon intelligence Scale free of faults, **Cyril Burt** of England and **Lewin M. Terman** of America, who were professors of psychology in Stanford University, did important work in 1916. Thus improved intelligence test is known by the name of '**Stanford Binet-Scale**'. While doing correction Terman made it fault-less with the help of his friend **Maud A. Merrill** in 1937 and again in 1960. 90 questions were put in place of 54 exercises of Binet in this corrected intelligence test, in which, some questions of Binet were also included. The intelligence of boys and girls of 2 to 14 years of age is measured by this scale. In this test two months were decided for the correct answer of each question for the age till 13, four months for the age till 14, and five months were decided for normal adult. On the basis of the answers of the questions of this exercise, mental age is known. And decision is given about the measurement of intelligence in the ratio to his real age. For example, in the exercise of Stanford Binet for the age of three years the list of determining questions is followings—

(*i*) Telling the name of his family.

(*ii*) To say about itself whether boy or girl (sex knowledge).

(*iii*) Repeat the sentence of 6 to 7 words.

(*iv*) Telling about his mouth, nose, ears etc with his finger.

(*v*) Seeing the knife, Scissors and keys etc, to tell their name.

(*vi*) Seeing any picture, telling its important things.

Through the above mentioned questionnaire Binet – Simon and Stanford – Binet Scale IQ differences can be seen.

2. Personality Non-Verbal Intelligence Test— Personality nonverbal intelligence tests are for those who do not have language related knowledge. Pictures, things and figures are used in place of language. This type of intelligence is also called performance intelligence, because answers are given in it in a performing way. Important nonverbal intelligence tests are following-

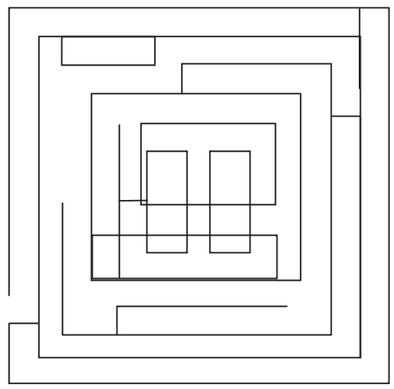
(a) Picture Drawing— This test is appropriate for the child from 4 to 10 years. Paper and pencil is given to the child, he is asked to draw the picture of a cow. In this test, marks are given on the basis of the completeness of the picture.

(b) Picture Completing Test— In this test in front of the child picture is given cutting in square in shape, and said to them, after collecting make a complete picture.

(c) Maze Test— In this test, child is given such a picture which has many ways to reach to a destination. The children, who reach there without any difficulty, are considered intelligent.

Notes

Fig. 15.1



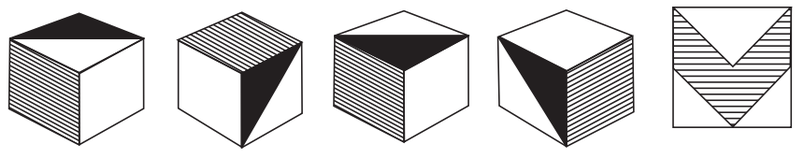
Portius Maze Test

(d) Form Board Test—In it, there is a board of wood in which, the holes of different shapes are made, as circular, semi-circular, triangular and quadrangular etc. The pieces that have been cut out have to be fixed in proper places. The child, who puts the proper pieces in proper places within proper time, is considered intelligent.

(e) Performance Group–Test made by Dr. Alexander—Alexander has invented a Battery after assembling up three test for the measurement of intelligence. This battery has following three tests—

I. Kohas Block Design Test—In this test, there are sixteen colorful cubes of one inch and ten designs. These designs are prepared upon the piece of card-board with the same color. Child has to jumble up all the cubes in such a way that design is made. Child has to jumble up all the cubes in many ways for different designs.

Fig. 15.2



Kohas Block Design Test

II. Cube Construction Test—This test has three parts—

(*i*) **In the first part**, there is a big model Block of 3″ × 1″ × 1″. Its four surfaces are of red colors and upper and lower surface are simple. Apart from this, there are 9 cubes made of 1inch. Its surfaces are colorful. Arranging the small boxes the shape of the model block is obtained.

(*ii*) **In the second part** of the model block, only the lower surface is not colorful. There are 9 cubes of 1 inch cube in it, whose surfaces are colorful. It is asked to them to prepare the shape of model block by jumbling them up.

(*iii*) In the third part there is a colorless cube of two inches and cubes of 8 cubes of 1 inch, out of which three surfaces are colorful. Assembling up, all these small cubes have to be put in a shape.

III. Pas Along-Test—In this test, there are 8 square or rectangular pieces of red or yellow color. These have to be moved without lifting that the required design is obtained. There are eight designs in this test.

(f) Object Assembling Test—Wacksler test is famous among this kind of tests. A human figure is divided in to many in it and child has to prepare a complete human figure after assembling the different parts.

(g) Bhatia Battery—The founder of Bhatia battery is Chandra Mohan Bhatia. It is also made for the measurement of intelligence in Indian situation. In this Battery, there is a assembling of five tests, which are following-

(*i*) Kohas Block design test

(*ii*) Alexander pass along test

(*iii*) Pattern drawing test

(*iv*) Immediate memory test

(*v*) Picture creativity test

Notes Intelligence test prepared by Dr. Bhatia is very good for the measurement of intelligence in Indian situation.

In the above test, there is limitation of time. Only 45 minutes are given for the responses. Students can answer the questions as early they want. On the basis of it, the speed of person is also tested along with the intelligence. In the tests where time is limited, they are called **time limited test**.

Some tests don't have time limitation. Student can take long time for responding the questions. In this test, it is also seen how accurate work a student can do along with the intelligence.

3. Community Verbal Intelligence Test—language is more used in it. In this test many questions that are collected in a small book. In the verbal test words and digits are used mostly. Children's verbal ability is measured by these tests.

The examples of the questions of Verbal intelligence test's are following—

1. In the following words which words are different from other words, underline them—

   Chair, Table, Cupboard, Bed, Shirt.
2. Which is not matched with the rest four among the five words?

   Chine, Japan, Mumbai, India, France.
3. The opposite of night is –pupil, king, day, evening.
4. 1, 4, 12, 16, 20—Write the successive terms of this sequence.
5. The meaning of mountain is—Field, Coast, Hill, Stone.
6. Vimal runs faster than Kamal. Hari runs slower than Kamal. Who runs fastest? Kamal, Vimal, Hari?

Group verbal intelligence test was developed during the time of First World War, because armies were to be selected within the short span of time. The main tests of this group are following-

(a) Army Alpha Test—This is for the people who know English. This test was developed in America for selecting officers, supporting staff and soldiers in large number during the time of World War I. It seems that the subject material of this test has been taken from the **Stanford-Binet Test**.

Notes

(b) Army General Classification—Army general classification had been prepared for the classification of army for the different divisions during World War II in America. In this test, there are three kinds of problems, As-Vocabulary, Maths and the problems related to the counting. This test was used for conducting the intelligence test for about of 12 lacs applicants.

In the field of collective intelligence test, notable efforts have been done in India. In which, Dr Mohanlal's B.P.T 12, B.P.T 13, B.P.T 14 are for the age of 12, 13,14. Dr. Jalota's and Dr. Joshi's tests are considered important. Besides it many intelligence tests have been prepared by Psychologists' Laboratory, Uttar Pradesh which are for the classes of eight, ninth and tenth standard.

4. Group Nonverbal Intelligence Test—Language is not used in it. In this test the picture of any animal is made and mistakes are to be found in the given picture. **Terman, Thomson, Hangto, Balard** and **Cattell** etc. psychologists gave essential contribution in the construction of intelligence test. Ballard's saying in this relation—"To find out fools and not to plough donkey with bull and to place capable person on the right position is possible with this plan." This type of test is applied for many men together without using language. This group's noted tests are following—

(a) Army Beta Test—Army beta test was also developed during the time of First World War in America for the fulfillment of purpose like Army Alpha test. The selection for the various positions for different divisions in the army was to be done from the people who were illiterate or had no knowledge of English language. Hence this method was adopted to find out the people with relative intelligence among the people with no knowledge of English language. Intelligence is measured in this method by counting of the articles, telling the relation between two articles with respect to the printed figure, and marking the elements of the figure which do not correspond to these articles at all etc. problem resolving.

(b) Chicago Non-verbal Test—Chicago non-verbal test is used for the age from 6 years boys or girls till the adulthood. It has proved more useful for the intelligence test of the age of 13 years. In this test, many working instruction are given, as telling the equality or inequality in different shapes, completing the picture after assembling the separated pieces of the picture, counting the things with the help of wooden pieces and recognizing the same things among the different things and putting them in different classes.

Besides the above in the group verbal intelligence test, **Cattle's** cultural independence test and **Pigeon's** non-verbal test have important place, where different kinds of shapes are shown and similarities or differences have to be shown in those shapes.

15.3 Intelligence Testing in India

The development of intelligence testing has been done in India some days ago. In the above described intelligence test, it was attempted to use Binet test in the Indian situation. Intelligence test related work was being done in the 'education department 'or psychological Bureau' in the universities of the different states. In 1922 Dr. C.H. Rice published '**Hindustani Binet Performance Test.**' This test is the corrective form of Binet test. After this, whichever performance test was constructed, **Dr. Bhatia Battery of Performance Test** is worth mentioning.

Bhatia Battery of Performance Test—Dr. Bhatia constructed the performance test for the children on the basis of battery of performance test made by Alexander. Following five tests are included-

Task In your opinion, what are the reasons of late start of the intelligence testing in India?

1. Kohas Block Design Test.
2. Alexander Pass Along Test.

Notes

3. Pattern Drawing Test.
4. Immediate Memory Test for digits.
5. Picture Construction Test, it has two tests of the same types which have been described above.

Pattern Design Test—In the Pattern Design Test, 8 line art were drawn on different cards. It is asked to draw the similar picture putting them in front.

In the Immediate Test for Digits—some digits as 7, 5, 11, 14 are asked to repeat once they are shown or told.

Picture Construction Test—There are five scenes from Indian life, putting them in the different pieces it is told to assemble them. Complete picture is prepared with this activity.

Apart from these intelligent test, following tests have been prepared in Hindi—

1. Verbal Intelligence Test—This was constructed in psychological Bureau in U.P. This test is for the age of 10 to adulthood.

2. Verbal Intelligence Test—This test has been prepared in U.P., this test is for the children of class 8, 10, and 12.

3. Verbal Intelligence Test—This test is for the children of 10 to 16. It has been constructed by Dr. S.A. Mohsin.

4. General Mental Ability test—This test has been constructed by Dr. Jalota. This test is for the age of 12 to 16 years.

Besides it, many intelligence tests have been prepared, which are used in the different fields according to the need.

Self Assessment

Select the correct alternative:

1. The credit of establishing the first laboratory goes to—
   (a) Alfred Binet (b) Wount
   (c) Terman (d) Alexandar
2. The American psychologist who corrected 'Binet-Simon Scale' was—
   (a) Pearson (b) Galton
   (c) Terman (d) Alfred Binet
3. The credit for preparing the first intelligence in India goes to—
   (a) Dr. Sohan Lal (b) Dr. Bhatia
   (c) Dr. Jalota (d) All above
4. The basis of intelligence test prepared by Dr.Bhatia in India was—
   (a) Cattell's Performance Test (b) Binet Performance Test
   (c) Alexander's Performance Test (d) Binet-Simon Test

15.4 Method of Measuring Intelligence

It is necessary for us to obtain knowledge about two subjects for knowing the method of measuring intelligence.

1. Mental Age

2. Intelligence Quotient

Notes

Mental Age—Mental age of a man is the indication of the level of intelligence. Mental age, in some especial age, expresses the mental maturity of a child. According to Dr. Mathur, "Mental age is the expression of limit of the development obtained by any man which is known by his works, and it is expected of him in some specific age." In psychology various kinds of intelligence tests have been constructed for the different ages and for determining mental age. Mental age can be known by these intelligence tests. For example, if any intelligence test, for the age of 12 years child's determines average score as 75, if the test score of any child is 75, his mental age will be considered 12 years even if he is 10 years old. There is no fixed relationship between the real age and mental age of any child. The mental age of 12 years old child can be equal to 8 years old child also. It is necessary to use intelligence test for knowing the mental age. The knowledge of mental age is obtained on the basis of the responses of the above descriptive tests.

15.5 Intelligence Quotient

After knowing the mental age of a man, it is not found whether he is intelligent, common or dull minded. **Psychologist Terman** invented intelligence quotient for measuring the intelligence. What is Intelligence Quotient? To know this, first it is necessary to find out the chronological age and mental age. After this, intelligence quotient is known by the following formula.

$$\text{Intelligence Quotient} = \frac{\text{Mental Age}}{\text{Chronological Age}} \times 100$$

$$\text{Or, I.Q.} = \frac{\text{M.A}}{\text{C.A}} \times 100$$

For example if the mental age of any child is 15 years and his chronological age is 12 years, his intelligence quotient is obtained in this way—

$$\text{Intelligence Quotient} = \frac{15}{12} \times 100 = 125$$

The meaning of this intelligence quotient is that, the child is intelligent. Generally, whose intelligence quotient is 100 or approximately, they are considered of normal intelligence.

The Classification of Intelligence Quotient

Psychologists have put the intelligence of man in the following classes on the basis of the counting of intelligence quotient.

Table 15.1

Intelligence-Quotient Class	Intelligence Class
1. From 140 till 200	Genious
2. From 120 till 140	Very Superior
3. From 110 till 120	Superior
4. From 90 till 110	Average
5. From 80 till 90	Dull
6. From 70 till 80	Feeble Minded
7. From 50 till 60	Moron
8. From 25 till 50	Imbecile
9. Under 25	Idiot

Notes

15.6 Utility of intelligence Tests

Intelligence tests have important place in the field of education. According to modern psychologist, education should be provided considering child as the central point. So it is necessary providing education, keeping in mind the intelligence and the capability of child. From this point of view, intelligence tests have become the important aid to education. Intelligence tests have following utilities in education—

1. Help in the Selection of the Student—Intelligence test helps in the entrance of proper student for proper class. Unworthy student are found out by it. And only worthy students are selected.

2. Help in the Psychological Classification of Child—Children can be divided into various classes with the help of intelligence tests. Genious, Average and dull minded children, Putting them in different classes, education should be provided to them according to their ability.

3. Help in the Measurement of Especial Ability—The best student in the college can be selected by this test, whoever gets highest place in the debate or other activities.

4. Help in the Dealing with the Problematic Students—The intelligence quotient of such a child found out by the intelligence test, whether the reason of his behavior is lack of intelligence or any other reason. Thus, with the help of intelligence test, the reason of uncommon behavior is known and they can be cured or improved.

5. Help in Giving Work According to the Capacity of a Child—The working capability of child can be found out by the intelligence test.

6. Indication Towards the Future of a Child—Douglas and Dazed have said, "intelligence tests point towards the future of a child." His future problem can be found out by this test.

7. Help in the Selection of Syllabus—It can be found on the basis of the test which subjects are proper for which students.

8. Help in the Annual Examination—On the basis of these tests, if intelligent student get less mark in the examination or gets failure, or due to illness he does not obtain good marks, he can be promoted to the next class.

9. Verification of the Works of a Teacher—How has teacher taught the students, it can also be found out by these tests.

10. Help in the Teaching Work of Teachers—By using the intelligence test, genius or dull minded child can be put in the different classes. Teachers feel comfort in teaching in this type of class, in which the students are of same level of intelligence and student also learns with interest.

11. Help in the Guidance Related to Occupation—Student's occupational ability can also be known by the intelligence test and they can be provided help in the selection of occupation.

12. Knowledge of the Progress of the Students—Teacher finds this by using the intelligence quotient, that, according to his ability, a student is progressing in his subjects or not. Thus by this test, the hardwork done by the student can be known.

13. Diagnosis of Mental Health—By the intelligence test, mental unhealthiness can known and cured.

14. Help in Deciding Scholarships—By these tests, worthy students can known, and scholarships can be given to them.

15. Remedy of Extravagance in the Education—Often in the colleges, many youngsters post-pone their education after failure. So for removing this extravagance, knowledge of a child's ability can be known, and they can be provided help in the selection of the proper subjects.

16. Help in the Study of the Specific Classes of Children—Intelligence test helps in the survey of the intellectual level of other racial community or specific classes as- dumb, deaf and blind.

17. Utility in the Field of Industrial and Occupation—By the intelligence test, help can be taken in the selection of the employees and officers for the government and non-government services. Thus,

Notes

we can see that the use of the intelligence test in the different field of day to day life is increasing. Many problems can be resolved and cured by the intelligence test in all the important spheres of life. Especially its usage has been proved very important in the educational field.

15.7 Summary

- It is important in the field of education to study the differences in mental abilities. The differences between the mental abilities and capabilities are decided by intelligence.
- In education it is necessary to study the personality differences. Many methods are used for obtaining the knowledge of personality differences.
- Psychologists have made different tests for the measurement of personality differences. In modern warfare, intelligence-tests began in Europe in relation to scientific study.
- In this relation **Alfred Binet** of France, **Thorndike** and **Terman** of America have done works that worth mentioning. Other psychologists as **Galton, Cattell** and **Pearson** have also invented many intelligence tests, but these tests measured common mental activities, so these cannot be called intelligence tests. In this field the first and prominent was **Alfred Binet**.
- Today many intelligence tests are present, for the measurement of intelligence. If we put light on the kinds of intelligence tests, they can be divided between two groups—(a) Personal or community intelligence test (b) Verbal or non-verbal intelligence test.
- The development of intelligence testing has been done in India some days ago. In the above described intelligence test, it was attempted to use Binet test in the Indian situation. Intelligence test related work was being done in the 'education department 'or psychological Bureau' in the universities of the different states. In 1922 Dr. C.H. Rice.
- Intelligence tests have important place in the field of education. According to modern psychologist, education should be provided considering child as the central point. So it is necessary providing education, keeping in mind the intelligence and the capability of child. From this point of view, intelligence tests have become the important aid to education.

15.8 Keywords

1. **Quotient**—Obtained
2. **Non–Verbal Intelligence Test**—In it language is not used.

15.9 Review Questions

1. Explain the intelligence test in detail.
2. Write a short comment on the history of intelligence test.
3. Explain the main differences between 'Binet-Simon Scale and 'Stanford Binet Scale'.
4. Explain the situation of intelligence tests in India.
5. What do you understand by intelligence quotient?
6. Explain the utility of intelligence test.

Notes

Answers: Self-Assessment

1. (b) 2. (c) 3. (c) 4. (d)

15.10 Further Readings

Books

1. Psychology-Study of the Human Behavior—*Brij Kumar Mishra, P.H.I. Learning, Pvt. Ltd. New Delhi.*
2. Psychology—*Dr. Saryu Prasad, Agra book Store, Agra.*
3. Development of the Learner and Educational Learning Process—*A.K. Verma, Hindi Book Centre, New Delhi.*
4. Educational Psychology—*S.K. Mangal, PHI learning Pvt. Ltd. New Delhi.*

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Unit-16: Theories of Intelligence

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Objectives

After the study of this unit, the students will be able to—

- Understand the different stages of the theory of intelligence.
- Understand Guilford's intelligence theory related S.I.Model.
- Know the Productional implications of Guilford's theory.

Introduction

Educational Psychologists have tried to explain the organizational form of intelligence by different theories or opinions. Binet, Terman and Stern have considered intelligence as the most powerful mental unit, as Thorndike divides it in three parts—social, concrete and abstract. Spearman establishes intelligence as general and especial form. Presently the discussion has been made on the theories of intelligence in detail.

16.1 Theories of Intelligence

Psychologists have accepted the following theories about the organization of intelligence—

1. Unifactor or Monarchic Theory
2. Two factor Theory

3. Three factor theory
4. Multi factor or anarchic theory
5. Multi mental Ability theory
6. Group factor or Oligarchic theory
7. Hierarchical Theory
8. Cattell's Theory
9. Unified Theory

(1) Unifactor or Monarchic Theory—It has been called one factor theory. The followers of this theory are Binet, Terman and Stern. According to it, intelligence is a unit and entire intelligence does only one type of work at one time when active. According to this theory intelligence is the most powerful mental power, which dominates all mental abilities. But this theory is considered faulty, because we cannot say if a person is good in Mathematics, he will be good in arts as well.

(2) The Two Factor Theory—the follower of this theory is psychologist, Spearman. According to this theory, there are two factors of intelligence, means intelligence can be divided between two parts.

(a) General Ability or 'G' factor

(b) Specific Ability or 'S' factor

According to Spearman, intelligence is the addition of two kinds of strengths. General ability helps a man in all kinds of activities and special ability helps in doing some special work. As-one is intelligent in music or art and other in Maths or Science. For the skillfulness in special activities, 'S' factor is needed.

General factor of intelligence has following characteristic—(1) it is found in all the factors. (2) It is innate. (3) This factor is always equal. (4) There is difference in the general ability of every person. (5) The man who has this factor more, he gets more success than other person. (6) This factor is more needed in all works of life.

Notes Spearman has considered difference in the general ability of man, one who has this factor more, he succeeds more than others.

These are Characteristic of Special Factor of Intelligence—(1) this factor is found in different people in less or more quantity. (2) Different kinds of special factor are determined for different activities. (3) the person who has more quantity of any special factor, he gets more ability in that.(4) Special factor can be acquired. (5) Different persons have different kinds of special factors.

(3) Three Factor Theory—In this theory, **Spearman** added collective factor with 'G' and 'S' factors of intelligence. According to it, three factors are needed in the intelligence test- general intelligence, special intelligence and language and spatial knowledge. This theory is in controversy. Psychologists have expressed their difference of opinions in this theory. So this theory cannot be all accepted.

(4) Multi Factor or Anarchic Theory—the founder of this theory is **Thorndike**, the famous psychologist of America. According to his opinion intelligence is the collection of many kinds of powers and there is no need of any kind of equality in these different kinds of powers. **Thorndike** does not consider the equal factor of intelligence, in his opinion, all men have unique intelligence. If one has the ability in one subject, his ability in other subject can not be guessed. **Thorndike** has divided the intelligence in three parts—

(*i*) Social Intelligence

(*ii*) Concrete Intelligence

(*iii*) Abstract Intelligence

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Did u know? Psychologist, Thorndike does not accept the equal factor of intelligence; rather in his opinion every man has a special intelligence.

(5) Multi Mental Ability Theory—Thorndike has called intelligence the collection of many abilities, but Psychologist Thurston and Kelly have said that the intelligence is made of a collection of some mental abilities. Kelly has described nine following abilities in the construction of intelligence—

(*i*) Social Ability

(*ii*) Verbal Ability

(*iii*) Numerical Ability

(*iv*) Motor Ability

(*v*) Physical Ability

(*vi*) Mechanical Ability

(*vii*) Musical Talent

(*viii*) Interest

(*ix*) Ability to deal with special relations

Thurston concluded after using different kinds of psychological tests that intelligence is the collection of following seven Primary Mental Abilities:

(*i*) Number Ability or N

(*ii*) Verbal Ability or V

(*iii*) Spatial Ability or S

(*iv*) Word Fluency Ability or W

(*v*) Reasoning Ability or R

(*vi*) Memory Ability or M

(*vii*) Perceptual Talent or P

It can be written in this way in English formula:

Intelligence = N + V + S + W + R + M + P

(6) Group Factor or Oligarchic Theory—The follower of this theory is G. Thomson, the famous psychologist of Scotland. According to him, there is a group or collection of special abilities. There is equality among the same abilities of a group or collection, as-under the collection of the literature abilities there will be a close relation among poem, story, and fiction and essay, but these abilities will have no relationship with the abilities of the collection of science.

(7) Hierarchical Theory—The follower of this theory is **Burt** and **Vernon**. They have given hierarchical theory to the mental abilities. And they have told the four following mental abilities.

(*i*) General mental health

(*ii*) Two parts of mental Ability-

(a) Performance, mechanical, internal and psychical abilities

(b) Verbal, numeric and educational abilities.

(*iii*) Division of above two level of abilities into many mental abilities, like memory, imagination and thoughts

(*iv*) Special mental abilities

(8) Cathell's Theory—Cathell has told the two factors of the general factor of theory of Spearman. These two factors are—

(a) Crystallized Intelligence—Cathal has called it GF factor and

(b) Fluid Intelligence—Cathal has called it GE factor.

The effect of heredity falls on the development of fluid intelligence. So, due to the different reason and heredity related changes, there is difference in the intelligence of different persons. The development of the crystallized intelligence is affected by the environment. Therefore, due to the environmental differences or similarities, equality or inequality can be seen in the intelligence of difference persons. According to Cathal, after philosophical analysis, the above two factors they can be divided among many factors. Cathal has constructed 'Culture Free Test for the measuring the intelligence'. By which fluid intelligence is measured.

Self Assessment

Fill in the blanks in the following sentences:

1. The founder of anarchic theory is ..... .
2. Guilford has delivered ..... theory.
3. "Intelligence is the power of learning" according to ..... .
4. If a man's ..... is destroyed, his ..... is finished.

(9) Unified Theory—Guilford has delivered the unified theory. According to Guilford, intelligence is a ''structure of intellect Model''. There are three parts of structured model which includes different abilities. These are following—

Task Which is the most scientific theory among the different theories of intelligence in your opinion? And why?

16.2 Guilford's S.I.Model

Under many intelligence related theory, Guilford has constructed his own theory. According to Guilford–intelligence is only a structure of primary intellectual abilities. Guilford said that every intellectual ability is special or unique in itself. There is need of some or the other intellectual ability in doing every work in proper way. Therefore, in Guilford's opinion, every intellectual ability should be measured in different way. Sir Guilford accepts that there are some similarities shown among some mental abilities. Guilford has put these in the three groups on the basis of these similarities-

1. Process or operation
2. Content or material
3. Product

Sir Guilford has described some special mental abilities for the each parts of these three, which is described in short—

1. **Process or Operation**—process means the nature of mental process by a man, means what will be nature of mental activities adopted by man in doing any given work, its explanation comes under the 'process'. For example, if a man is asked to explain the pros & cons of mobile, here the evaluation will be found comprising of five factors of process, under which following five important mental abilities come—

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(a) **Cognition**—on the basis of this ability a man remembers any thing again. Repeat it and try to recognize it.

(b) **Memory**—on the basis of this ability a man, on the basis of his previous experiences, establishes relationship with the present. He remembers his previous experiences and remembers them carefully.

(c) **Divergent thinking**—on the basis of this ability, a man uses his intelligence in the many dimensions. He can think about different dimensions, can take decision according to the situation. His thinking is not one sided.

(d) **Convergent thinking**—convergent thinking is the other side of divergent thinking. Both types of thinking are important in the life of a man. With this type of thinking, a man becomes capable in a way that he finds out correct solution for any problem at last.

(f) **Evaluation**—on the basis of this ability, a man lives in whichever atmosphere or doing work on whichever problem, he tries to keep all information about them. Then, after analyzing the entire situation he reaches out to the correct decision by the proper method.

2. **Content or Material**—Content means the field of information, which serves as the basis for all process. Guilford has divided this kind of information among four parts. Under process, whichever examples have been presented, evaluation is included in them. Its content is semantic. But sometimes it happens that the information obtained by person is not semantic, rather it is in the form of pictures. In this condition, the nature of content will be called figural. Under it Guilford has described the following four parts—

   (*i*) **Figure**—It means that a man tries to understand and recognize some special figure after watching it. He does this work with the help of his sense organs. And inspect the figure thoroughly in a proper way.

   (*ii*) **Symbolic**—It means that after understanding the different symbols in proper way, a man can use them according to the importance in his life. It is needed to understand the different kinds of symbols to do different kinds of work in life.

   (*iii*) **Language**—Language related ability is considered important to succeed in life. In the condition of having good command over language, a man can convey his own thoughts to others very well and understand others' thought very well. Even the nature of thoughts can also be easily perceived.

   (*iv*) **Behavioral**—It means social intelligence, which helps a man in the understanding of different human communications easily. It has been considered as the most important stage of life.

3. **Product**—the meaning of product is the result of the process done by any special kind of content. Guilford has divided it in 6 parts. For example, if we tell any student to put odd and even numbers in different categories, then the work done by the student will be put under product category. When content is used in any process, result is obtained. Under it, six types of abilities come, they are following—

   (a) **Units**—It is important to understand the meaning and knowledge of seeing, hearing and symbolic units. Means, here a man tries to understand the uniqueness and characteristics of sensory perceptions.

   (b) **Class and Category**—Under it, the ability of the classification of the units come. It is seen in it that a man can put thoughts in category or not.

   (c) **Relation**—Under it, it is observed that a man can understand the relationship among different things, or not, along with this whether he can explain this relationship or not.

   (d) **Systems**—According to it, providing the arranging the nature of different kinds of thoughts and problems and finding out their solution etc are included.

   (e) **Transformations**—It is related to that type of ability in which a man can learn of the nature of particular thing after making a specific change, or to advice which change will be able to bring

about the specific form.

(f) **Implications**—it means that the man has the sufficient ability to understand the contained meaning in the thought, things and facts. So some people use implication as the contained meaning.

It is clear from the above description, that, in the context of intellectual abilities, mental abilities have the followings things contained in them as per Guilford—

1. Five operations
2. Four contents or materials
3. Six Products

According to Guilford all these mental abilities are related to one another. Thus, the total counting of the intellectual dimensions can be called— $5 \times 4 \times 6 = 120$

Guilford's above descriptive theory is one of the best extended theories. Yet the assumption of Guilford states that this model is quite theoretical and changes can be done in it. The most important thing is that it gives birth to new possibilities in the scientific field.

This theory of Guilford can be understood in short in the following way, that, intelligence is a logical structure which is made of two main things-memory and rumination. The classification of the rumination has been done under cognition, product and evaluation. Product has been divided between two classes-divergent thinking and convergent thinking. Thus, in total there is a collection of five intelligence parts, which has been cleared by the medium of some processes. The classification of five collections has been done on the basis of two theories. Under it whichever types of outcomes (units, classes) are included and the types of content (figure, language, symbolic and practical) that have been taken, in this connection Guilford ends his theory, stating, that the blank cells indicate towards those primary mental abilities, whose discovery still remains.

Its long factors—Guilford presented a model of the shape of box, on the basis of scientific analysis in 1967, which is known by the name of Intellect Structure Model. He made cubes of $5 \times 4 \times 6$ in this model, means total 120 cells, in which different factors depending on the three factors related to mental ability have been put. Minimum one factor or ability has been kept in each cell, in some cells, factors more than one can be put. There is no arrangement of it. Guilford has described each factor in three dimensions and on the basis of his factor analyzing research; he has got success in establishing the existence of 80 factors, and was hopeful for the remainder. Guilford has divided all the factors of intelligence in this way.

General Mental Intelligence

Operation	Content	Product
1. Evaluation	1. Figural	1. Units
2. Production	2. Symbolic	2. Classes
3. Memory	3. Semantic	3. Relations
4. Cognition	4. Behavioral	4. Systems
		5. Transformations
		6. Implications

16.3 Productional Implications

As far as the question of the implication of this theory in the educational field, Guilford had told during the time of delivering this theory that this theory will give birth to new possibilities in the field of education and in the field of research. Guilford had this belief that this theory would provide a new

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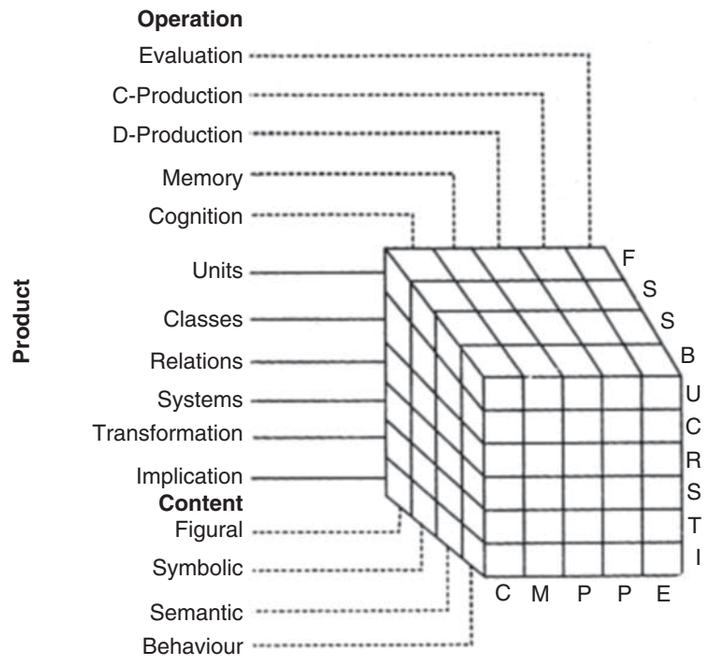
nature to the entire educational learning process. He has compared learner to computer. Difference between them is so that student determines his program himself, while computer depends on others.

Fig. 16.1 Intellect Structure Model



In short it can be said that Guilford's above descriptive theory is not completed yet and it is necessary to do further discoveries in this regard. There is no doubt that Guilford has shown a new way of searching by delivering this theory in the field of intelligence. Igink writes in the relation of this theory-

"Guilford classifies the intellect into operations, which it can perform, different contents of these operations and different products. By taking all possible interactions we obtain 120 cells corresponding to different mental abilities. Of these, Guilford claims to have evidence in actual factorial studies for eighty. He is optimistic about the discoveries of remainder."

16.4 Summary

- Intelligence affects the mental ability of a child. What is intelligence? The answers to this question have been given by the psychologists as per their opinions. Psychologist have explained the nature of intelligence with the help of various definitions, and their conclusion is, that, intelligence is a general ability. It is a collection of different abilities and the essence of special ability.
- Psychologists have accepted the following theories about the organization of intelligence.
  1. Unifactor or monarchic Theory
  2. Two Factor theory
  3. Three factor theory
  4. Multifactor or anarchic theory
  5. Multi mental Ability theory

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6. Group factor or Oligarchic theory
7. Hierarchical Theory
8. Cathell Theory
9. Unified Theory

- Under many intelligence related theory, Guilford has constructed his own theory. According to Guilford—intelligence is only a structure of primary intellectual abilities. Guilford said that every intellectual ability is special or unique in itself. There is need of some or the other intellectual ability in doing every work in proper way. Therefore, in Guilford's opinion, every intellectual ability should be measured in different way. Sir Guilford accepts that there are some similarities shown among some mental abilities. Guilford has put these in the three groups on the basis of these similarities—
  1. Process or operation
  2. Content or material
  3. Product

16.5 Keywords

1. **Helper**—supportive
2. **Helpless**—move away, different

16.6 Review Questions

1. Throw light on the theories of intelligence.
2. Write the difference between monarchic and anarchic theory.
3. Evaluate the 'Unified theory' of Guilford.

Answers: Self-Assessment

1. Thorndike	2. Unified	3. Bankigham	4. Intelligence, Knowledge

16.7 Further Readings

Books

1. Educational Psychology—*S.H. Sinha and Rachna Sharma, Atlantic Publication, New Delhi.*
2. Educational Psychology—*S.K. Mangal, P.H.I. learning, Pvt. Ltd., New Delhi.*
3. The information and importance of education in the children—*Seema Chopra, Hindi book center, New Delhi.*
4. Development of the learner and educational learning process—*A.K. Verma, Hindi book centre, New Delhi.*